ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. XCV, No. 4 — Thursday, July 28, 1932

Spruce Falls Earns More Than Million Net

Company Operating News Print Paper Mills At Kapuskasing, Ont., Reports Net Profit of $1,106,262 for Fiscal Year Ended April 30, 1932—Compares With Net Profit of $755,002 In Preceding Year—Operating Surplus of $206,121 Carried Forward — Balance Sheet Shows Cash Assets of $2,632,437

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 25, 1932—Net profit of $1,106,262 is reported by Spruce Falls Power and Paper Company, Ltd., for the fiscal year ended April 30, 1932. The company operates paper mills at Kapuskasing, Ont. Dividends paid on the first and second preferred shares amounted to $973,007, and there was remaining after these deductions an operating surplus of $206,121 carried forward. In the previous year there was a net profit of $755,002, which, after the preferred dividends, left a deficit for the year of $219,405. The balance sheet as of April 30 shows cash assets at $2,632,437.

Development of China Clay Deposits

The Ontario paper industry was interested in the announcement a few days ago from Kapuskasing, Ont., that further development of china clay deposits in Northern Ontario are to be undertaken this year. It is stated that J. D. Grant, of Hamilton, Ont., original owner of a block of clay claims on the Matagami River at Long Rapids, has associated himself with a syndicate planning extensive work this year and preparations are being made to ship large quantities of fire clay and china clay. The claims are some sixty miles north of Kapuskasping and eight miles north of the railhead of the line which extends from Kapuskasing to Smoky Falls.

It is indicated that the first work will be to put the road from Smoky Rapids to Long Falls in good condition for heavy truck traffic, for which purpose Mr. Grant is taking a crew of men. After gravelling of the road is completed a fleet of six-ton trucks will be used to haul china and fire clay to the railheads and shipments will be made to plants in the United States and in Southern Ontario, where the clay has been established of high quality. A three-quarter ton shovel will be used to excavate the clay.

Plans for later execution contemplate the building of clay washing plant and installation of kilns for burning fire brick. It is also planned to build this summer a washing plant of 200 tons capacity daily, and three kilns with a production capacity of 250,000 fire brick weekly. In addition to the plans for shipping clay early this summer, it is stated that silica sand will be shipped in bulk.

Two other concerns have been mentioned recently in connection with development of Northern Ontario clay deposits. C. McCarthy, for the Northern Ontario Clay Corporation, an organization with headquarters in Toronto, was reported making preparations to take out 1,000 tons of clay for sample shipments. The Ruby Oil and Coal Syndicate, according to E. E. Sheppard, of North Bay, Ont., manager, also planned to bring out from 1,000 to 2,000 tons for manufacturing into table ware and pottery, initial manufacturing to be done in Hamilton, pending decision as to whether the company would go into manufacturing. The claims of the Northern Ontario China Clay Corporation constitute the original discovery at Long Rapids, while those of the Ruby Oil and Coal Syndicate are at a distance of 28 miles from the northern terminus of the Spruce Falls Power and Paper Company's railway line at Smoky Falls. The latter company plans a different outlet taking the clay down the Massinibi River to the new James Bay line of the T. & N. O. Railway, a distance of about 45 miles.

News Print Consumption Well Maintained

In a statement regarding the news print industry and its future, Alex Smith, Toronto, president of the Abitibi Power and Paper Company, says: "While conditions in the news print industry show no immediate promise of improvement, which must wait a definite upturn in the general business situation, it is well to remember that, in comparison with other heavy manufacturing industries, news print consumption is being well maintained, further expansion is definitely ended for several years to come and there is an increasing tendency toward lower productive capacity through the elimination of obsolete plants, which cannot continue to operate indefinitely under present competitive conditions."

Paper Man Returns From Old Land

"The people of Canada have talked themselves into a depression," was the opinion expressed by Fred L. Ratcliff, president of the Ratcliff Paper Company, Toronto, who has just returned from a holiday in England, with tidings of the optimism and good cheer that prevails in the Old Land. "I have heard more talk here of depression and hard times in 24 hours than I heard in England during the two months

(Continued on page 20)

Activities of Fox River Valley Paper Mills

Kimberly-Clark Corp., of Neenah, Wis., Reports Net Earnings of $112,969.87 for First Half of Year—Earnings Declined Sharply In Second Quarter—News Print Paper Mills Anxiously Await Interstate Commerce Division's Decision

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 25, 1932—Earnings of the Kimberly-Clark Corporation, Neenah, Wis., for the second quarter of 1932 took a decided drop, according to the company's published financial statement. The net after deduction of bond interest, taxes and dividends on preferred stock was $17,663.96, as compared with a net of $112,969.87 for the first quarter. This gives an earning on common stock of three cents a share compared with 19 cents the first quarter. In the second quarter of 1931, the earnings were $1.01 a share, and in the first quarter of last year, 96 cents. For the first half year of 1932, the earnings per share therefore were 22 cents, as compared to $1.97 for the first half of 1931.

Net sales (exclusive of interplant sales) for the first quarter were $3,778,407.68 and for the second quarter, $3,341,638.83, or a total of $7,120,046.49 for the first half. Cost of sales was $3,130,003.01 for the first quarter and $2,830,184.74 for the second quarter, or a total of $5,960,187.75 for the first half. Gross profit for six months was $1,159,858.74 and selling cost was $883,242.28, leaving a profit from operations of $276,616.46. Other income for six months amounted to $399,123.47, resulting in a net income before interest, taxes and preferred dividends of $675,739.93. Bond interest amounted to $213,380.06, federal taxes to $50,500, and dividends on preferred stock $298,890.00 for the first six months. This leaves the net earnings $112,969.87 for the first half.

Suede Finish Paper Popular

Suede finished paper manufactured by the Mosinee Paper Mills Company, Mosinee, Wis., is enjoying a popular market. The process has been perfected to the point where the paper will show no signs of oxidation for at least two years, and it takes printing so effectively it is being used for the fine details of half tone work. It is about as near an imitation of suede leather as it is possible to produce, and is now produced in seventeen colors for the trade.

Month of Research Required

It took months of scientific research to obtain an exacting product that had the velvety characteristics of suede leather, free of odor, with effective adhesion to the paper base, and capable of bending without breaking. Samples have been subjected to aging tests by being exposed to heated air for 100 hours, after which it is pronounced durable enough to withstand long usage. The machine producing it is equipped with two rolls, one steel engraved to give the grain and the other of a softer fibrous construction. They rotate in contact at the same speed and in opposite directions. A perfect suede finish is the result, and the product has been received popularly by the printing trade.

Paper Chemistry Institute Expands

Addition of another building to the Institute of Paper Chemistry at Appleton, Wis., by Lawrence College is contemplated in the near future. The college is now completing the J. A. Kimberly Memorial Library for the Institute. Almost all of the exterior work has been finished, and the interior work is under way. The building is to be ready for use at the Fall college term.

There is now established at the Institute a complete pulp mill in minature for the production of pulp by various processes, but the need is felt for another building housing paper machinery, so the manufacture may be carried through to the finished product as a means of more effective training of the graduate students enrolled there. The Institute also is devoting a lot of time and attention to research to improve processes, and would apply the same policy to the paper mill.

Kimberly-Clark Officers Sued

Demurrers in suits totalling about $400,000 against F. J. Sensenbrenner, president, and J. C. Kimberly, vice-president, of the Kimberly-Clark Corporation have been filed in circuit court at Oshkosh, and answering briefs are to be filed in twenty days.

Four former stockholders of the paper company are suing these two officers and others, charging conspiracy in the sale of stock to the company, alleging it was purchased at less than true value. The demurrers contend there is no cause of action given in the complaint and that the statute of limitations has run in regard to any act committed over six years ago. It is alleged stockholders were not given clear reports of the condition of the company and the officers took advantage of their ignorance.

The four complainants in the case are heirs of the late Peter R. Thom, former general manager of the Kimberly-Clark Co., Neenah, Wis. They are Mrs. Christina W. Thom, the widow, seeking $156,750, Edgar R. Thom, a son, seeking $140,000, and Lois Thom Nichol, a daughter, $20,000. Summons is on file in another case in which Helen G. Roemer, another daughter, is plaintiff, but no complaint is on file

News of the Industry

Employees of the Marathon Paper Mills Company, Division at Ashland, Wis., had their annual picnic Sunday at a local park, with about 2,000 attending. The day was spent with ball games and contests between crews of various departments, and with other recreation. Many prizes were awarded.

The Southern Ruralist Company, Inc., of Atlanta, Ga., has filed a brief with the Interstate Commerce Commission asking a lower freight rate on paper, other than news print, shipped to Atlanta from the Kimberly-Clark Corporation's mill at Kimberly, Wis. The present rate is 88 cents a hundred pounds, and it is charged that this is excessive and unreasonable. The company seeks reparation also for past payments.

William F. Steinert, who served the Kimberly-Clark Corporation as a millwright for twenty-five years, died at his home at Appleton, Wis. last week. He was 70 years old.

News print mills are anxiously awaiting a decision of the Interstate Commerce Commission on its investigation of the news print situation. They cite that the industry and the advertising business are in precarious situations and have suffered from changed conditions as much as the railroads. Briefs were filed in the case August 1, 1930 and pressure is being brought to render a decision, which it is hoped will be favorable to shippers of news print.

Boston Paper Market Displays More Activity

Demand for Various Standard Grades of Paper Improves and Inquiries for Future Account Are Numerous—Summer Specialties Continue In Seasonal Request—Box Board Moving In Moderate Volume—Paper Stock Market Irregular

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 25, 1932—Definitely more action has developed in the wholesale paper market in the last week, followed by increased cheerfulness among many merchants. "The birds are chirping more optimistically," to use the expression of one paper man. In addition to orders, inquiries are more numerous. This condition applies to many cases, although some do not report so favorably for the week. Encouraging reports from some other industries have had a salutary effect on many of the trade, who have, no doubt, benefited both in actual orders and in their state of mind.

Bonds and ledgers are apparently holding their own. Printing papers have been moving in larger volume, according to reports. Some new lines, including both fine and wrapping paper, are being put on the market. There is more activity in papers for the shoe trade. Summer specialties continue in fairly good demand. Box board is moving in moderate volume, although indications favor greater liveliness.

In the paper stock market there appears to be a little improvement in roofing rags, although values have not yet appreciated. In other lines, no particular change from dullness has developed and the few price revisions that have been made have been downward. One of the local box board mills was shut down during the week. Price changes include the following: No. 1 old manila paper has declined from .80 @ .90 to .60 @ .70; paper mill bagging from .60 @ .70 to .50 @ .60; new white No. 1 shirt cuttings from .04 @ .04½ to .03¾ @ .04, and new white No. 2 shirt cuttings from .03 @ .03¾ to .02¾ @ .03¼.

News of the Trade

Arthur E. Ham & Sons have become sole Boston agents for Potomac Torchon, a new cover, of which they are distributing attractive sample books and are stocking in their warehouse. Potomac Torchon has a modern finish, combined with excellent printing surface. Both sides are so much alike that it is almost impossible to tell them apart, and in the printing quality they are the same. The embossed finish lends an air of distinction and quality while retaining a waxy surface. This cover, manufactured by District of Columbia Paper Manufacturing Company, is in white, yellow, buff, blue, azure, lavender, coral, brown, wintergreen and light gray.

The Brown Company has put on the market a new line, Sealo, a northern kraft, in the highly competitive Number 2 field. This paper is made in finishes for all industries and is individually treated for each industry. The new line is meeting with a favorable reception. The Brown Company have removed their local office at 80 Federal street from Rooms 744-746 to Room 716 in the same building.

Colonel Edgar Smalley, managing director of Edwin Butterworth, Ltd., who has been in this country three weeks, including a visit to the local office of the firm, sailed for England Saturday on SS. *Scythia*.

J. H. Brewer, general manager of Storrs & Bement Company, left today on a two weeks' yachting trip along the Atlantic Coast.

Warren D. Thompson, of Baird & Bartlett Company, with his family, is passing his vacation at their summer residence, Harrison, Me. Richard F. Piper, of the same company, accompanied by Mrs. Piper, has gone on a vacation, including Montreal and other points in Canada.

Nathan S. Clark, president of Knight, Allen & Clark, Inc., dealers in printing papers, envelopes and card boards, says that new orders and inquiries are being received and that there is more confidence.

I. P. Co. Reports Larger Sales

International Paper and Power Company reports that gross sales in the first quarter were $35,916,838, compared with $35,475,300 in the first quarter of last year; net revenue including other income and before interest, depreciation, etc., was $10,700,175 against $9,995,231; and balance deducted from surplus was $399,567 compared with $593,561 added to surplus in the first quarter of last year.

In his comments to shareholders, Archibald R. Graustein, president of the company, says:

"The net loss of $399,567 for the first quarter of 1932, as compared with a balance of $593,561 carried to surplus for the first quarter of 1931, reflects the continued fall in prices and in volume of business. Business is still declining and operations for the second quarter will result in a net loss materially larger than that for the first quarter.

"On the other hand, it should be noted that the losses recorded are after substantial charges for reserves which do not entail any money payments.

"An intensive effort to achieve added economies in operations and in overhead is now under way. These improvements together with the further reduction of approximately 10 per cent in all salaries and wages made effective June 1, 1932, by International Paper Company and subsidiaries should result in annual savings of between $2,000,000 and $3,000,000."

Comparative earnings statements are as follows:

Quarter Ended March 31	1932	1931
Gross Sales	$35,916,838	$35,475,300
Net revenue, inc. other income	10,700,175	9,995,231
Less: Int. and disc. on funded debt, income taxes, divs. and amounts applicable to minority stocks of subsidiaries	8,935,796	7,524,573
Depreciation	2,163,946	1,877,097
Balance for I. P. & P. Co. dividends	(D) 399,567	593,561
Less dividends on I. P. & P. Co. preferred stocks	.....	1,632,565
Balance deducted from surplus	399,567	1,039,004

(D) Deficit.

In the above statement income and expenses of Canadian subsidiaries have been taken at parity of exchange without adjustment of differences between foreign and United States currencies. All profits and losses actually realized in transactions involving exchange have been included in the above results.

Board and Paper Products Co. Formed

INDIANAPOLIS, Ind., July 25, 1932—Articles of incorporation have been filed with the secretary of state here by the Board and Paper Products Company, Inc., of Fort Wayne, Ind. The corporation has an intial capital stock of 500 shares valued at $100 each par value and the first board of directors is composed of Edmund H. Miller, Elinor B. Miller and Arthur F. Gerding.

Fraser Co's Reorganization Plan Ratified

Vote of Note Holders At Meeting Held In Montreal Last Thursday Favors Proposed Exchange of $5,000,000 Fifteen Year 6½ Per Cent. Unsecured Debentures for Common Shares—Attitude of Bond and Security Holders to be Considered This Week

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 25, 1932—At a meeting of the noteholders of the Fraser Companies, Ltd., held here on Thursday, the proposed plan for reorganization of the concern was ratified by a vote of approximately 8 to 1. Opposition to the ratification was led by a recently-formed Noteholders' Protective Committee.

The noteholders were asked to approve the exchange of $5,000,000 fifteen-year 6½ per cent unsecured debentures of the Fraser Companies for common shares. The shares are to be represented by voting trust certificates issued in accordance with the scheme at the rate of two common shares for each $100 held in debentures.

Bondholders and owners of the securities are to meet this week to consider whether or not to ratify the plan in so far as it affects their holdings.

Donnacona Reorganization

From Quebec it is announced that opposition has developed in connection with the proposed reorganization of the Donnacona Paper Company, Ltd. At a meeting of about 700 first mortgage bond holders a vote was passed against the acceptance of the plan it was proposed to submit at a meeting to be held this week.

At the end of the last Donnacona fiscal year, December 31, there were outstanding a total of $6,584,000 of the 5½ per cent series A first mortgage sinking fund gold bonds.

The meeting decided to submit a counter proposal to the company by which bondholders would receive income debentures for their bonds at the rate of $500 for each $1,000, together with ten ordinary class B shares, as well as representation of "gold bond" holders in the management of the company.

Dalhousie Operations Curtailed

The New Brunswick International Paper Company has announced that because of present marketing conditions, the paper mill at Dalhousie will run only on about half time, as production must be cut down. The plant for the present, will operate two instead of four machines. Recently a 10 per cent reduction of salaries and wages of the company's staff went into effect also.

Union Trust Makes Distribution

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 25, 1932—Distribution of $8,400,000, a 50 per cent dividend of the Union Trust Company by the Winters National Bank and Trust Company, as Trustee, under agreement of the courts, the Attorney General's office and the State Banking Department, is under way and promises to prove a substantial aid to both retail and wholesale business in Dayton and the Miami Valley.

Many thousands of depositors received their money during the past week and others will follow this week, including thousands of school children who are to receive their full deposits as their first and only payment in the liquidation of the Union Trust, closed since the latter part of last October.

The distribution of these millions was brought about largely through the efforts of three large paper manufacturers who have interests not only in Dayton and the Miami Valley but in other sections of the country and in Canada.

These men were the heaviest individual depositors in the closed bank and with one exception opposed the resumption of business by that bank. When the plan for liquidation on a 100 per cent basis was suggested, all gave their unqualified support and favored the payment out of half of the bank's assets, the balance to be paid when obligations are met by the Union Trust customers. A substantial loan was made from the Finance Reconstruction Corporation and the first thing the Winters bank will do in the future, will be the repayment of this loan.

Probably the opinion of Edward B. Weston, head of the Weston Paper Company, and one of the heavy depositors of the Union Trust, will show how the distribution was viewed here this week.

"Dayton citizens have suffered like all other cities where financial institutions have been closed," he said, "but I think the release of 50 per cent of the bank's assets will be instrumental in re-establishing a fair amount of confidence in this community.

"The industry of the Miami Valley likewise will benefit because it will release additional capital with which to carry on normal operations.

He cited the fact that $8,400,000 would take care of accounts considerably in excess of that amount. "The release of this increased line of credit among firms and individuals should be a real help to the community."

Union Bag Strike Continues

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., July 23, 1932.—The striking employees of the Union Bag and Paper Corporation have been notified that they must make application before August 1 if they wish to continue working for the company. This announcement was made by John P. Burke, president of the Pulp, Sulphite and Paper Mill Workers, at a meeting held here this week. He said that a number of the strikers had already received notification but it is probable that the mills will continue running with the non-union force if no applications to return are received. It was suggested by Mr. Burke that the unions enlist the aid of the executive committee of the American Federation of Labor in its dealings with the company in order to effect a speedy settlement.

During the meeting William Collins, an official of the American Federation of Labor, advised the strikers to remain firm in their stand for union recognition and praised them for their sacrifices already made. He declared that it was not fair to ask the workers to accept working conditions similar to those existing in the South and said that the full support of his organization would be given. He also challenged the directors to an open debate on whether or not paper could be produced cheaper in the South than in the North.

Manufacturing Chemists' Association Meets

At the recent annual convention of the Manufacturing Chemists' Association that was held at Atlantic City, N. J., the following officers were elected: Lamont du Pont, president; W. B. Bell of the American Cyanamid Company, vice president; Edgar M. Allen, second vice president; J. W. McLaughlin, treasurer; Warren R. Watson, secretary.

Mr. Derby Speaks on the Tariff

H. L. Derby of the American Cyanamid Company, who was re-elected a member of the executive committee, delivered the following address on the tariff:

Beginning with George Washington's term as President, down through the years to the present Administration, Industry has been protected in the United States by a tariff, excepting in the terms of two presidents. No one will deny that our progress in this country has been steadily forward, and no well-informed person will deny that the tariff has contributed greatly to this program.

Our present tariff law was drawn on the theory that it equalizes the difference in the cost of production in foreign countries and at home, taking into account elements of expense in delivering articles to the principal domestic market. Such a tariff cannot be regarded as an embargo against foreign countries, our International bankers to the contrary, notwithstanding. As a matter of fact, 70 per cent of our imports enter the country duty free and if there is any article in the 6000 odd items that is incorrectly assessed a remedy lies in the so-called "Flexible Section" of the administrative part of the act, which permits readjustment of such duty to the extent of 50 per cent upward or downward. Since the "Hawley-Smoot Act" became a law there have been 164 applications for change received by the Tariff Commission, 91 of these were ordered investigated, including 16 ordered by the Senate. 45 were denied or dismissed. 12 were withdrawn. There are still 36 cases pending. Report on 10 applications have been sent to the Senate, and 39 reports have gone to the President for his approval. Of these 39, the rating on 8 commodities were advanced and on 16 the ratings were reduced.

Attacked by Political Leaders

A general attack, as has been carried on by various political leaders, on the whole 6000 items is therefore rather inconsistent. Repeatedly have challenges been issued by tariff supporters to those in opposition to name a list of articles that are assessed with excessive duties, and those challenges have never been answered.

No other indusfry, more than ours, needs protection against ruinous foreign competition. The history of the chemical industry, with which you gentlemen are so familiar, indicates beyond any question of doubt the inability of our industry to exist without this protection. At the beginning of the World War America was startled to find that the very basic products of defense were not made in this country, or were made in such inadequate quantities as to be of little value. Our distinguished President, at that time, Woodrow Wilson, made the vigorous statement that never again should America permit the chemical industry—this important arm of defense—to be without proper support and encouragement in the development that should and would take place. The growth of the chemical industry since that time has been tremendous in 1913 the capital investment was less than $2,000,000,000 and today it is in excess of $5,500,000,000. More than one million men are normally engaged in the industry and operating at a normal rate of production, more than 4 million freight cars are needed for the transportation of raw materials and finished products of the industry. These figures are for those (if any) who enjoy statistics. That growth would have been impossible without traiff protection.

With the cheap foreign labor and transportation costs from the Ruhr to Hoboken—lower than from Harrisburg, Pa. and Rochester, N. Y. to the same destination—this development in our industry would not have occurred.

Statement by Mr. Treadway

Numerous uninformed individuals attack the high rates in the present act, but Representative Treadway of Massachusetts recently made the statement on the floor of the House of Representatives that Schedule No. 1 in the present act, based on 1928 imports contained average rates of 31.4 per cent against 29.22 per cent in the 1922 act, and that if you excluded the so-called "agricultural chemicals" from the present law that the rates on other chemical products are actually lower at present than they were under the 1922 law. Mr. Treadway also pointed out that the present law increased only 47 items under the old schedule, and decreased 66 items. The 1930 law transferred 26 items from the dutiable to the free list, and only 14 items from the free list to the dutiable list, so it will be seen that the present tariff law was not drawn with an idea of improving the position of the chemical industry over that enjoyed in the prior law.

Foreign interests are very actively engaged in propaganda to either make ineffective or destroy the tariff protection to American industry, and the chemical industry is logically one that will find itself assailed. It hardly seems conceivable that the nation would endanger its defense in these times, nevertheless, there will be arguments which would to the uninformed sound plausible and which will be stressed and propounded with the one thought in mind that if a change in the Congress takes place in November a new tariff bill can be put through which will be satisfactory to the foreign producers and to some international bankers. We are told that unless we reduce our tariff rates and allow the foreign manufacturers to sell their goods in this market that we will never collect the foreign debets. Personally, I had rather postpone those debts 100 years than to reduce our tariff schedules and permit a flood of foreign goods into this market, further increasing unemployment and bringing disaster to industry, agriculture and labor.

Some Interesting Figures

It has been said that our foreign trade of 1929 which amounted to $5,240,000,000 in exports and $4,309,000,000 of imports was seriously affected by reason of the tariff passed in 1930, and the figures of 1931—$2,424,000,000 in exports and about $2,000,000,000 in imports are given to substantiate this contention. If, however, one is to subtract imports of 1931 of $2,000,000,000 from the imports of 1929 of $4,309,000,000 we find that this $2,500,000,000 added to our exports in 1931 of $2,424,000,000 equals a figure of $4,800,000,000 which is only $400,000,000 less than the total exports of 1929. My point is this, the decrease in imports has I believe been made up, to a great extent, by the substitution of domestic production for foreign imports and, as a matter of fact, there is no country in the world in as good a position to isolate itself, so far as International trade is concerned, as is the United States.

I do not believe that foreign countries are putting up tariff walls in retaliation for any other country's tariff walls. I believe these countries are putting up tariff barriers to protect their domestic industries and encourage as far as possible their domestic industrial and agricultural activity, and I firmly believe that the waste of unnecessary transportation to and from the different countries can be avoided by more domestic business and less international business. As to our own tariff situation, Garrett Garrett in a recent tariff article in the *Saturday Evening Post* very tritely writes "To say that tariff barriers have ruined trade is like saying fever is the cause of disease."

Export Business Least Profitable

As a matter of fact, the export business of the United States has been the least profitable and the most expensive of any class of business we have enjoyed, and while I am in sympathy with foreign trade, I want to see that foreign trade a logical trade and trade that does not operate to the disadvantage of the United States. I do not believe we should attempt to sell sheep to Australia, nor lumber to Canada, but I do believe that we should sell to foreign countries such products as we produce better or cheaper, and I believe we should purchase from foreign countries those products that can be best grown and produced in those countries, and I maintain that our tariff law, as at present on the statute books, was intended to provide for this very thing. Raw materials which we purchase abroad come in duty free and many finished products inadequately produced here are subject to no duty. I do not believe in excessive tariff schedules, and I see no reason for enacting a high tariff on bananas to force the consumption of oranges.

You have read that England, for the first time in history, has abandoned free trade and erected a tariff barrier. During the last 10 years England has averaged in the collection of tariff duties $562,000,000 per annum. The U. S. average over the same period was $570,000,000 per annum. England's population is less than 40 millions. Ours over 120 millions.

If we could always keep in mind that in the final analysis labor is the chief item of every finished product and that we are actually selling our country's labor in the form of produce and manufactured products, it might aid us in the realization that, if taken from the ground to the finished product, labor in most instances represents more than 90 per cent of the cost of the product. Standards of labor in this country are higher than in any other country, and I, for one, do not want those standards reduced to those of the foreign countries.

Hamilton Comparatively Prosperous

DAYTON, Ohio, July 25, 1932—Hamilton, the home of a couple of large paper concerns and a paper machinery plant, also woolen mills and other industries allied with the paper industry, is one of the best in the state, it is revealed, in an industrial and commercial sense.

Naturally, the depression has affected the community, but not as much as might be expected. Hamilton has managed to forge ahead in spite of conditions.

According to a report of John B. Gilbert, chief of the division of labor statistics, a payroll of more than 25 million dollars was disbursed in Butler county.

Middletown, "The Paper City," which has more paper manufacturing companies than its sister city, Hamilton, likewise is located in Butler county and should be given full credit for the large amount of the payroll, in addition to Hamilton.

The payroll covers 773 establishments reporting to this division in the Ohio department of Industrial relations.

The exact total, the report discloses, is $25,303,714. Of this amount approximately $19,000,000, or 75.3 per cent of the payroll, was paid to wage-earners; more than $3,427,000 to bookkeepers, stenographers and office clerks; $1,072,062 to salespeople (not traveling) and $1,740,393 to superintendents and managers.

One hundred and thirty-four of these establishments were manufacturers, reporting a total payroll of $18,796,424, or 74.3 per cent of the county's total payroll.

The county's total loss in payroll for 1931, as compared with 1930, was $10,256,551, and in the manufacturing group $8,700,221.

It is interesting to note that the iron and steel industries probably suffered most, with a loss of 42.3 per cent; paper and printing, a loss of 9.2 per cent, with tobacco manufacturers suffering even a smaller loss than the paper and allied industries.

In the 134 establishments 14,271 persons were employed. The maximum of employment was reached in April with 20,567.

New Sample Book of Gummed Papers

The Gummed Products Company, Troy, Ohio has just produced a new sample book showing its line of flat gummed papers. A tabbed index divides the White Papers into three groups as follows: English Finish, Supercalendered Finish, Coated. This index enables the printer more easily to find the grade that will serve his purpose, so far as printing surface is concerned.

The colored papers are divided into three groups, as follows: Mediums and Krafts, Plated, Glazed. There is also a section containing special grades such as glassine, a paper for printing on the gummed side, and a paper for sticking to metal surfaces.

Each sample carries a brief description of its characteristics and also gives complete information with regard to the gumming.

In addition to the tabbed index for printing surface, the book also contains an index page from which can be found the grade best suited for sticking to almost any surface. Twenty-eight different surfaces are listed in this index and they cover practically every requirement.

The book is bound in a plain, neat cover which shows up to splendid advantage the TROJAN trade-mark label used by The Gummed Products Company.

The book contains about 75 samples representing approximately 90 regular items in the entire line. The Gummed Products Company has been manufacturing all kinds of gummed paper and cloth for nearly twenty years and its products are well known for their high standard of quality. The quality of every item has been maintained and in many instances improved recently, thus making the title of the sample book "A Complete Line of Highest Quality Gummed Papers" truly descriptive of its contents.

Interested persons are invited to write for a copy of this sample book.

Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 20, 1932—The Japanese Paper Manufacturers Association reports output by the mills of the association as totaling 53,914 short tons during the month of April as compared with 54,735 tons during the preceding month and 57,640 tons during the corresponding month last year. Production for the four months period of the current year totaled 213,323 tons and sales 225,712 tons, as against 222,427 tons and 223,697 tons respectively for the corresponding four months last year.

Holyoke—The Paper City to Welcome TAPPI

Holyoke, a city of varied industrial progress, in the heart of the Connecticut Valley famous for its scenic beauty, is ideally suited for the fall meeting of the Technical Association of the Pulp and Paper Industry, September 14, 15 and 16.

Captain Elizur Holyoke and Captain Roland Thomas on a trip down the Connecticut River in search of a suitable place to settle were so much attracted by the beauty and splendid situation of the locality that they settled and founded the city of Holyoke.

Holyoke's Industries

Holyoke is known the world over as "The Paper City." Within its confines are the largest manufacturers of fine writing paper, one of the largest silk mills, the largest alpaca mills, and the greatest power pump works in the world, as well as a number of the leading paper converters, makers of fine stationery, blank books, envelopes, cover papers, etc. Here are to be found some of the finest mechanics and other workmen in this country engaged in the manufacture of paper-making machinery, valves and hydrants, boilers, elevating trucks, electric tractors and other metal products, automobile tires, accessories and allied lines.

Practically all the material that goes into the making of articles of wearing apparel is produced in Holyoke. Large thread, worsted, cotton, plush, blanket, felt and braid plants, many of them nationally known, send their products to the four corners of the earth.

The estimated value of products manufactured in Holyoke annually is $100,000,000.00.

The upbuilding of Holyoke and its manufacturing development are largely attributable to the water power which has been harnessed by a great dam spanning the Connecticut River. This powerful yet picturesque dam is 1,020 feet long and feeds three levels of power canals having a total fall of over 57 feet, and aggregating five miles in length, along which are situated Holyoke's progressive mills. This canal system is unique among the power developments of the country. The development was conceived in 1849, and is even today conceded to be a wonderful engineering achievement.

Transportation Facilities

Holyoke is centrally located and is within easy reach of large financial business and social centers. It is 107 miles from Boston, 143 miles from New York City, 99 miles from Providence, 63 miles from New Haven, 103 miles from Albany, 61 miles from Brattleboro, a gateway to the Berkshires and the Mohawk Trail.

Members in the west can make connections by fast trains (carrying Pullmans) over the Michigan Central Railroad, without change to Springfield, which is only twenty minutes from Holyoke. Trains leave the Grand Central Station New York City at frequent intervals from 8 A. M. to 11:45 P. M., the trip taking a little less than four hours. Connections from Boston and the North can be made with equal convenience.

The convention will have headquarters at the Nonotuck

HOTEL NONOTUCK

Hotel where requests for room reservations may be made. There are also several small taverns which accommodate small parties at very reasonable rates. The Hotel Northampton in Northampton and the Kimball Hotel in Springfield are within easy reach of the headquarters.

Make reservations early as a splendid program is being prepared and no one can afford to miss this fall meeting.

Points of Interest

MT. TOM

The entrance to Mt. Tom is from Northampton Street, the main highway between Holyoke and Northampton. The observatory, which is part of the new summit house, is 1266 feet above sea level. Referring to Mt. Tom, the late President McKinley said, "It is the most beautiful mountain outlook in the world." The top is reached in comfort. The Mt. Tom Railway is most interesting in its operation. Large electric cars operate from the base to the top and back again. The telescopes in the observatory open up a magnificent panorama.

DAM OF HOLYOKE WATER POWER CO.

LOOKING TOWARDS MT. TOM FROM CITY HALL

MT. HOLYOKE

Abraham Lincoln thought it worth while to climb this mountain back in 1860, as countless others had done before and have done since. The Mt. Holyoke Hotel, located on the summit, is a popular outing place. It is in South Hadley Center, on the main highway between Holyoke and Amherst. An auto road leads to the top.

HAMPTON PONDS

Located midway between Westfield and Holyoke is a large body of water called Hampton Ponds which offers boating and bathing facilities. Its shores are dotted with cottages. The committee is planning to use this ideal spot for their recreation program.

HOLYOKE CANOE CLUB

The Holyoke Canoe Club is located at Smith's Ferry. It has a splendid club house and well developed grounds with tennis courts, athletic field, canoeing and boating facilities. Its location on the Connecticut River is most advantageous for swimming and other water sports.

MOUNTAIN PARK

Mountain Park comprises over 500 acres of mountain and meadow woodland. It contains unusual geological formations and the largest collection of various species of trees found in any area of similar size in New England. Its amusement facilities include all of the devices calculated to interest young and old. It has a large restaurant, a splendid dance hall, theatre, pavilions and athletic field. A half million dollars is now being spent in its further development and its wild charm is carefully preserved. Its natural beauty is enhanced by rose gardens, lily ponds, and a profusion of flowers of many kinds.

THE COLLEGES

Mount Holyoke College in South Hadley Center is the oldest institution of learning for women in America, and is one of the most picturesquely situated. Smith College in Northampton is the largest women's college and has a beautifully developed campus. In Amherst are located the famous Amherst College and Massachusetts State College. Trips will be arranged so that visitors can visit the campus of these colleges.

GOLF CLUBS

Within a half hour drive of the City of Holyoke are located eight splendid golf courses, making this city a mecca for golf enthusiasts. The Mt. Tom Golf Club, located on Northampton Street, is one of the sportiest eighteen-hole courses in the country. The Holyoke Country Club is located at Smith's Ferry on the main highway between Holyoke and Northampton and has superior natural attractions to make it a popular place. In South Hadley Center is The Orchard Club which has a course that offers an interesting challenge. Other clubs, which are nearby are the Oxford Club in Chicopee Falls, the Springfield Country Club on the main highway between Holyoke and Springfield, the Mt. Tekoa Club in Westfield, the Longmeadow Club in Longmeadow and the Northampton Country Club in Northampton.

The local committee is arranging tournaments at some of these courses where fine trophies will be given to the winners.

Segal Paper Co. Files Petition

BOSTON, Mass., July 18, 1932—Ben Z. Segal, doing business as Segal Paper Company, Lynn, Mass., salesman, has filed a petition in bankruptcy. Liabilities, $7,265; assets, $240. Schedules are to be filed later.

Reynolds & Reynolds Add New Line

DAYTON, Ohio, July 25, 1932.—A new product has been added to the output of the Reynolds & Reynolds Company, it was revealed the past week when the sales force assembled at the Dayton factory. The salesmen held a four-day session and were addressed by Edward S. Reynolds and other officials.

The new line is "crook proof" bank checks, fashioned from a new stock of safety paper. It is expected that the sales from this line will mount to $1,250,000 during the coming year, it was announced by company officials.

The sales force, covering the entire country, is in addition to the one already in the field handling the company's previous products and will be under the supervision of L. H. Forster, sales manager.

In connection with the new product, the company announces the opening of a bank supply division headed by R. C. Chick, who came to the Dayton company several months ago from the Todd Corporation, Rochester, N. Y.

Chick has had wide experience in handling bank supply lines, having been associated with the Bankers Supply Company at one time in Denver and Chicago.

Mr. Chick told the assembled salesmen that the new line of supplies is to be the most up-to-date of any ever put on the market by any bank supply house. The entire lineup is centered around the company's new "Reynoco" safety paper, this paper being a product of the Miami Valley and with outstanding advantages.

The paper will be converted into bank checks for the new line of manufacture and is thoroughly crook-proof in that it cannot be altered or tampered with.

Inasmuch as the output will be handled by a separate sales organization, the sales force will be doubled. Increased facilities for the manufacture of this enlarged volume are being planned by the installation of new equipment and added personnel. The enterprise is bound to aid Dayton industry and spread the fame of Dayton-made products throughout the United States.

Paper Directory of the World

The Paper Makers' Directory of All Nations published by Dean & Son, Ltd., London, England for 1932 has just appeared. It is substantially bound in cloth and contains over 1,000 pages.

The international character of this Red Book of the Paper Industry (its 41st annual issue), renders it of particular interest to all those who are in any way connected, or have business relations, with the paper and allied trades, while the alphabetical nature of its arrangement makes it particularly easy for reference.

How the pages of the volume have been affected by events and circumstances of the past thirty years will be found referred to in the Prefatory Note, while in the directory itself detailed particulars are furnished regarding the paper, pulp and board mills of the World, such as location, productions, number and width of machines, tonnage output, power used, telegraphic address, etc., as well as lists of British wholesale stationers, paper merchants, waste paper merchants, rag merchants and paper stock dealers, China clay producers and merchants, cardboard box manufacturers, paper bag makers, and paper agents with the mills they represent; the mill productions too are classified under 400 trade headings, alphabetically arranged as to products, countries, and mills.

Dean's Paper Makers' Directory of the World may be ordered from the Lockwood Trade Journal Company, 10 East 39th street, New York.

New York Trade Jottings

Ben Alexander, president of the Wausau Paper Mills Company, of Brokaw, Wis., was among the prominent visitors to New York last week.

* * *

D. C. Everest, vice president and general manager of the Marathon Paper Mills Company, of Rothschild, Wis., was a New York visitor last week.

* * *

Col. Edgar Smalley, managing director of Edwin Butterworth, Ltd., sailed from New York for Liverpool last Saturday aboard the Cunard liner *Scythia*.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, with headquarters at 342 Madison avenue, New York, spent several days in Chicago last week.

* * *

J. M. Berger, president of the Forbes Paper Company, of 362-364 West Broadway, New York, is a proud grandfather for the first time. A baby boy was born on Sunday, July 10, to his daughter and son-in-law, Dr. and Mrs. M. B. Bangel, and not a daughter, as inadvertently stated in this column last week.

* * *

The fourteenth exposition of Chemical Industries, the next chemical show, will be held in New York during the week of February 27 to March 4, 1933. Grand Central Palace will again be the location and three entire floors will be devoted to the exhibits showing the newest developments in raw materials, machinery and manufacturing products. Already, at this early date, more than 179 companies have reserved space. The exhibitors represent over forty American industries which are classified as chemical.

* * *

E. A. Westfall, associated with the general management of the Hearst newspapers for several years, resigned last week to resume his former connection with the H. G. Craig Paper Company, 230 Park Avenue, New York, of which he has been vice-president for a number of years. Mr. Westfall retained his position of vice-president during his association with the Hearst organization. The H. G. Craig company was appointed last week as sole sales representatives in the United States for Donnacona Paper Company of Quebec.

German Paper Production Lower

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27, 1932—German paper and board production during the first five months of this year shows a decrease of nearly 15 per cent compared with the corresponding period of last year, according to figures released by the Central Association of Paper and Pulp Manufacturers. Production of news print, which is the largest item dropped from 211,060 tons to 171,283 tons; other wood content printing and writing papers from 145,450 tons to 127,838 tons; and boards from 145,884 tons to 133,410 tons.

A. J. Palmer Heads United Wall Paper

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., July 25, 1932.—A. J. Palmer of Madison, N. J., has been chosen president of the United Wall Paper Factories, Inc., succeeding Winfield A. Huppuch, of this village. Mr. Huppuch has been named chairman of the board. Charles W. Kellogg, also of this village, has been promoted to vice president after serving a number of years as treasurer.

Paper Mills in Safety Contest

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., July 25, 1932.—A number of paper mills in this district have already enrolled in the eighth annual accident prevention contest sponsored by Associated Industries which is scheduled to start late next month. Several hundred concerns have already filed entry notices and the contest promises to be lively. Weekly reports will be made during the progress of the campaign and prizes will be awarded those having the best records at the conclusion late in November.

It was announced that entries so far have not been as high as last year but an increased number is expected before the closing date. Several paper mills in this section were among the winners in the contest last year in which the enrollments were the largest ever recorded. Chamber of Commerce organizations in the various cities are cooperating with Associated Industries in order to make the campaign a success.

Hammermill Duchrome Cover

The Hammermill Paper Company, Erie, Pa., announces a new duplex cover paper which has been given the name "Hammermill Duchrome Cover."

This new paper is distinctive in that the lighter side is a step-down of tone value from the darker side. This not only assures perfect harmony if the stock is used for a menu program or announcement, but provides a unique and pleasing transition from the outside cover of a booklet to the inside cover, and from there to the white or tinted text paper that may be selected for the body of the message. The color step-down has been carefully planned and makes for readability as well as attractiveness.

Duchrome comes in four color combinations and four finishes, in a medium weight that is sturdy enough to stand a lot of use, and light enough to be economical in first cost and mailing expense.

Appeal Union Bag Case

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., July 25, 1932.—Village officials have served notice of appeal on the recent decision of Judge Heffernan in granting a writ of certiorari to the Union Bag and Paper Company and Union Bag and Paper Power Corporation for a review of the assessments on their mill properties. The document has been filed with the county clerk. The writ granted is returnable at a term of Supreme Court on July 22 and was issued a few weeks ago.

Several months ago Judge Heffernan had declared void a similar order issued by Judge Rogers on the grounds that relationship existed between the latter and the mayor of the village. A few weeks later the paper company filed application for a new writ which was granted.

Port Terminal at Fort Edward Busy

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., July 25, 1932.—The port terminal here is the scene of considerable activity. A vessel is being loaded with news print paper by Finch, Pruyn & Co. for shipment to customers which has necessitated the employment of a large force of stevedores. The company is now using the water route almost exclusively in its shipment.

Another consignment of foreign pulp for the Union Bag and Paper Corporation is also expected in the near future.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Buffalo, N. Y.—The Electric City Box Company, 202 Oak street, manufacturer of fancy paper boxes and containers, has taken over the Monarch-Nusbaum Paper Box Company, with local plant at 106 Broadway, following recent purchase, and will consolidate with its organization. Purchasing company will continue the line of paper box and container manufacture of the Monarch-Nusbaum company, carrying out general expansion program for that purpose. Lawrence M. Weil is president of the Electric City company.

Stevens Point, Wis.—The Consolidated Water Power and Paper Company, Stevens Point Branch, has secured permission from the Wisconsin Public Service Commission for raising and enlarging its local dam, for increased water service for mill. It is understood that work will proceed at an early date.

Hartford City, Ind.—The Fort Wayne Corrugated Paper Company, Fort Wayne, Ind., has resumed operations in the mill division at plant at Hartford City, following shut down for a number of weeks. This places all departments of the plant in service, to be continued for an indefinite period. A sizable working force is being employed.

Fall River, Mass.—The J. & J. Corrugated Box Company, recently organized to manufacture corrugated paper boxes and containers, has leased local factory space, and will soon begin operations. It is proposed to give employment to about 30 operatives for the present.

South Dallas, Tex.—The American Paper Stock Company, 916 South Pearl street, is said to be planning early rebuilding of portion of storage and distributing plant on Hickory street, recently damaged by fire. An official estimate of loss has not been announced.

Pottsville, Pa.—The Pottsville Box Corporation, recently organized by local interests, with capital of $100,000, is said to be planning operation of plant for the manufacture of corrugated and other shipping boxes and containers. The new company is headed by W. J. and B. R. Biever, 621 Greenwood avenue, and G. W. Morrison, 1108 West Market street, all Pottsville.

Kimberly, Wis.—The Kimberly-Clark Corporation, North Commercial street, Neenah, Wis., is planning alterations and improvements in acid plant at mill at Kimberly. Estimated cost has not been announced. Work is expected to begin at an early date. Plans have been approved by the State.

Roanoke, Va.—Viscose Corporation of America, Inc., Marcus Hook, Pa., has resumed production at mill at Roanoke, for manufacture of cellulose materials for rayon service, following shut down for more than a month past. Employment will be given to about 450 persons for initial operations. At later date, a number of additional employees will be reinstated.

Green Bay, Wis.—The Straubel Paper Company, 625 Willow street, has taken out a permit for construction of a one-story building at Monroe and Willow streets, to be used for storage and distributing service, and will place work under way at once. Estimated cost has not been announced.

Jaite, Ohio—The Jaite Company has arranged for the production of cellophane display bags, glassine paper bags and similar specialty paper containers, in addition to regular line of heavier paper bags and containers. The new specialties will be handled by the Small Bag and Specialty Division of the company.

Savannah, Ga.—Following experiments for the production of paper from Georgia pine pulp at local experimental plant, recently established, plans are under way for the production of news print from such material. It is said that a commercial mill for such manufacture will be established in the near future. Extensive raw material sources are available, being estimated at about 10,000,000 acres of slash pine in Georgia, Florida and other southern states, while North and South Carolina, Virginia and neighboring states have an aggregate of close to 100,000,000 acres of longleaf and loblolly pine. H. V. Jenkins of the "Savannah News and Press," Savannah, has information regarding the proposed commercial news print production.

Fall River, Mass.—The United Rayon Mills, Inc., have resumed production at their local cellulose rayon plant, following curtailment for a number of weeks. Employment will be given to about 200 workers. The company has secured several large orders, insuring continuous operations for some time to come.

De Pere, Wis.—The DePere Paper Manufacturing Company has completed plans for the rebuilding of portion of local mill, recently destroyed by fire, and it is understood that work will be placed in progress at an early date. Plans for the project have been approved by the state. Estimated cost has not been announced. W. E. Reynolds, 113 South Roosevelt street, Green Bay, Wis., is architect. Herman Miller, 425 South Van Buren street, Green Bay, manager of plant, will supervise rebuilding.

San Francisco, Cal.—The Crown Zellerbach Corporation, 534 Battery street, has arranged a plan for change in capital structure, reducing present capitalization from $24,239,447 to $9,958,400, with change in value of shares of stock from $12.17 to $5.00 each, increasing capital surplus by an amount of $14,281,077.

Toronto, Ont.—E. Pullan, Ltd., paper stocks, is planning rebuilding of storage and distributing plant on Cannon street, recently damaged by fire, with loss reported at

AMERICAN

STEEL SHEETS for AMERICAN SHEET AND TIN PLATE COMPANY PITTSBURGH EVERY PURPOSE

USS

STAINLESS AND HEAT RESISTING ALLOY STEEL SHEETS AND LIGHT PLATES

Specially Adapted to the Paper Making Field

ONE standard of thoroughness in research, and of specialization in alloy steel manufacture, applies to all the Chromium and Chromium-Nickel Steels offered by this Company and other manufacturing subsidiaries of the United States Steel Corporation.

One fund of experience and technical resource gives to all of these the credentials of authentic worth—but no one formula limits their adaptation for specific uses. Rather a series of alloys has been developed, each differing, and offering maximum resistance to particular forms of corrosion. USS Stainless Steel Sheets and Light Plates are recommended for all uses where properly applicable.

Chromium-Alloy Steels *Ferritic*

USS 12
USS 17
USS 27

Inquiries regarding any application of Stainless Steel Sheets or Light Plates, or any product fabricated from either, will be given most careful attention. Write for literature.

USS Chromium-Nickel Alloy Steels are produced under licenses of the Chemical Foundation, Inc., New York; and Fried. Krupp A. G. of Germany.

This Company also manufactures high grade Black, Galvanized, and Special Sheets, Tin and Terne Plates for all uses.

Chromium-Nickel Steels *Austenitic*

USS 18-8
USS 18-12
USS 25-12

USS STEEL

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

KEYSTONE COPPER STEEL AMERICAN SHEET AND TIN PLATE COMPANY

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:

American Bridge Company
American Sheet and Tin Plate Company
American Steel & Wire Company
Carnegie Steel Company
Columbia Steel Company
Cyclone Fence Company
Federal Ship'ldg. & Dry Dock Co.
Illinois Steel Company
Minnesota Steel Company
National Tube Company
Oil Well Supply Company
The Lorain Steel Company
Tennessee Coal, Iron & R.R. Company
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, San Francisco, Calif.
Export Distributors—United States Steel Products Company, New York, N. Y.

$20,000. Similar plant of company on Erin street was also damaged in later fire, with considerably smaller loss.

New Companies

Brooklyn, N. Y.—The Franklin Fibre Mills, Inc., has been incorporated by Joseph and David Weinblatt, 1530 Park place, Brooklyn, with capital of 100 shares of stock, no par value, to manufacture and deal in fibre products.

New York, N. Y.—The Beckhard-Simfred Company, Inc., has been incorporated with a capital of 650 shares of stock, no par value, to manufacture paper goods of various kinds, operating a converting plant. The incorporators are Julius Beckhard, 875 Academy road, Woodmere, L. I.; John C. Dengler, and Irving Beckhard, 8740 Elmhurst avenue, Elmhurst, L. I.

Newark, N. J.—The Stellar Paper Company, Inc., has been incorporated with capital of 2500 shares of stock, no par value, to manufacture and deal in paper goods of different kinds. The incorporators include F. M. Mueller and P. Davis. Company will be represented by Saul Tischler, 45 Branford place, Newark, attorney.

Buffalo, N. Y.—Alan D. Oppenheimer, Inc., has been incorporated with capital of 200 shares of stock, no par value, to deal in paper products. The incorporators are Alan D. Oppenheimer, 1414 Amherst street, and Joseph Stewart, 36 Dodge street, both Buffalo.

Pittsburgh, Pa.—Dickinson & Chapin, Inc., has been incorporated with capital of $5,000, to deal in paper products of various kinds, wrapping papers, etc. The incorporators are Carl W. Dickinson, J. W. Rogers and Newton Chapin, 535 Irwin drive, Edgeworth, Pa. Last noted is treasurer and representative.

New York, N. Y.—The Columbus Paper and Specialties Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in paper products of various kinds. The incorporators include Max L. Rothenberg. Company will be represented by the Exco Lawyers Albany Service, 116 Nassau street.

EARNS MORE THAN MILLION

(Continued from page 9)

I was there," stated Mr. Ratcliff. "We are doing mighty fine, was the song from one end of the country to the other and it didn't sound like a slogan. It is exactly how the people feel." Conditions in Canada, Mr. Ratcliff believes, are just as favorable with the exception that the people are inclined to be despondent and make things look worse than they really are. "Why over there the taxes are tremendous," he exclaimed. "They are taxed to death. We would think that we were ruined if we were taxed as heavily as they are." A past president of the Rotary Club in Toronto, Mr. Ratcliff motored from one end of England to the other, visiting the various Rotary Clubs en route.

A. P. Costigane Visits Paper Mills

A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, has returned to Toronto after a visit of inspection to a number of the paper mills in northwestern Ontario in the interest of safety work in the various units. Mills at Port Arthur, Kenora and Dryden were visited, these including the Thunder Bay Paper Company; Provincial Paper, Ltd., Fort William Paper Company and the Great Lakes Paper Company at Fort William. In conversation with the PAPER TRADE JOURNAL Mr. Costigane said that the trip on the whole was satisfactory. Inspection of the chief hazards in each of the mills indicated that while production might be cut down, accident prevention was still receiving a certain amount of attention. The fact that up to the time of the visit there had been no fatal accident in any of the pulp and paper mills in Ontario was a matter for favorable comment. However, "we touch wood," said Mr. Costigane, "and hope that the excellent record so far achieved will be maintained to the end of the current year and so set a goal for future years." Sturgeon Falls, Espanola and Sault. Ste. Marie mills will be visited shortly.

Notes and Jottings of the Trade

Ground wood pulp, that is, wood pulp produced by grinding on large grindstones, formed over 63 per cent of the total quantity of wood pulp in Canada in 1930, according to figures just released from Ottawa. Of the chemical pulps, which are produced by cooking the wood in a weak solution of certain chemicals, the most important was unbleached sulphite, which formed almost 22 per cent of the total.

Twelve hundred cords of pulpwood on the railway siding of the T. & N. O. Railway between Porpois Junction and Cochrane, were recently destroyed by fire. About 1,000 cords were saved through the efforts of a crew which manned a tank car. The destroyed wood was the property of the Thompson & Heyland Lumber Company, Toronto, D. Chenier, Cochrane, and L. Silver, Timmins, Ont.

Doon Twines, Ltd., Kitchener, Ont., have let the contract for an addition to their plant, costing $11,000. Plans call for a single story structure, 60 by 100 feet.

Owing to the lower demand for news print both in Canada and the United States as well as overseas, the operations of the Bathurst Power and Paper Company, at Bathurst, N. B., have decreased. At the moment prospects of any marked advance in consumption do not appear to be overly bright and continued low operations are to be expected, in so far as the months immediately ahead are concerned. Faced with the prospect of low demand, the management of the company decided to produce other forms of pulp products and to that end turned over one newsprint machine to the manufacture of kraft liner board. This has had an appreciable effect in improving operations and is also expected to bring about some improvement in the company's earning power.

Damage to the extent of about $8,000 was wrought by fire to the East End branch of E. Pullan, Ltd., rag and paper stock dealers, Toronto. This is the second heavy loss by fire which the firm has suffered, fire having partially wiped out the Hamilton branch premises of the company a week or so ago.

Don Valley Paper Mills, Toronto, were closed down for a week during the middle of July while the mill was refloored and other improvements added.

Norman Fair, of the sales staff of Alliance Paper Mills, Toronto, is spending his vacation on Georgian Bay.

Arthur Hobson, of the Toronto office of the Howard Smith Paper Mills, is holidaying with his family in the Kawartha Lake region.

Representatives of the Canadian board mills met in Toronto a few days ago and were said to have made some progress along the line of stabilizing the industry in the home field.

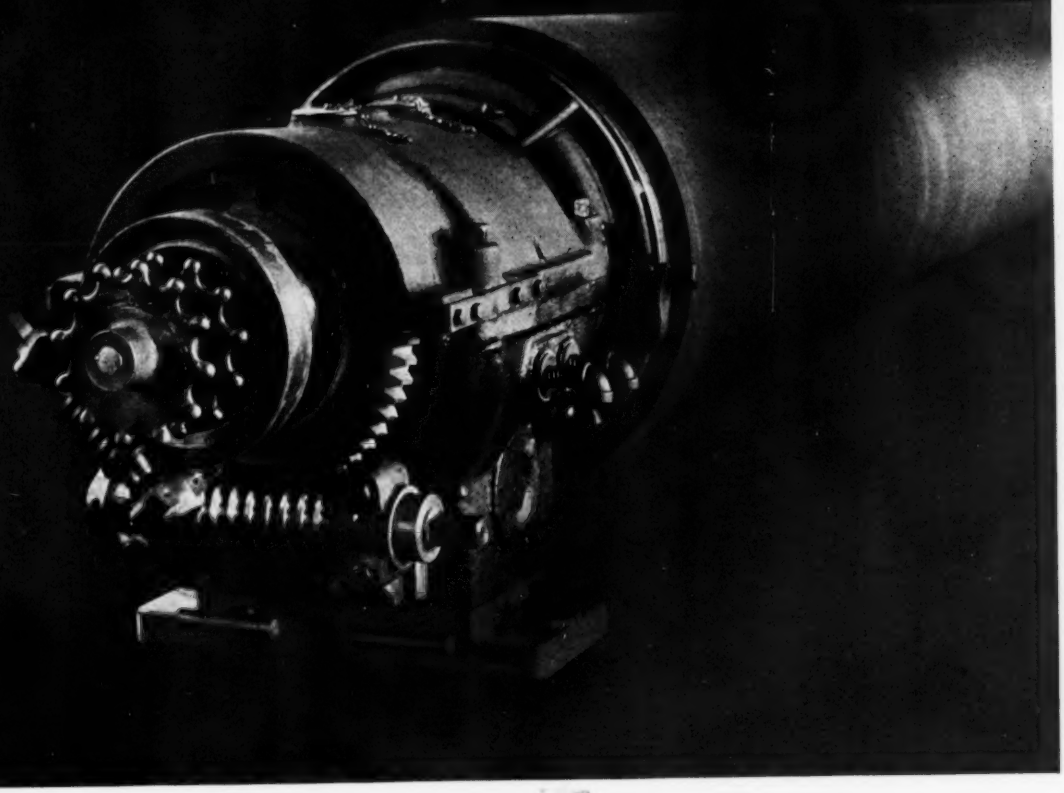
Kurt Wandel Resigns

Kurt Wandel, vice-president of the Cellulose Products Corporation, Shamokin, Pa., announces his resignation. The company was originally organized as Cellulose Products, Inc., with Mr. Wandel president of the corporation until last year's reorganization which brought in new interests which have since been in control. Mr. Wandel has no immediate plans and will remain in Shamokin for the present.

DOWNINGTOWN

NO FEAR!

OF SHADOW
IN HIGH CLAY



PAPER TRADE JOURNAL
ESTABLISHED 1872

Published at 34 North Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices, 10 East 39th St., New York, N. Y.

Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm,
Washington Correspondent

Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCV — New York, July 28, 1932 — No. 4

COMING EVENTS

Technical Association of the Pulp and Paper Industry, Fall Meeting, Nonotuck Hotel, Holyoke, Mass., September 14, 15 and 16, 1932.

FOREIGN PAPER TRADE

Exports of paper and paper products from the United States during the month of May were valued at $1,426,944, an increase of 2 per cent compared with the preceding month, but a 35 per cent decrease compared with the corresponding month last year according to the Paper Division of the Department of Commerce. The heaviest increase was noted in our exports of book paper, not coated, to China, which amounted to $58,507, against $8,147 in April and $9,936 in May, 1931. Shipments of this commodity to Philippine Islands and Australia were also considerably heavier, while those to Canada and Mexico showed sharp decreases.

Compared with April, the following other increases are noted: Bristols and bristol board 87 per cent, other writing paper, 43 per cent, tissue and crepe paper, 25 per cent; surface coated paper, 16 per cent; wall board of paper or pulp, 10 per cent, while slight increases occurred in news print, greaseproof and waterproof papers, wall paper and paper bags and only slight decreases were noted in overissue and old newspapers, paper towels and napkins and vulcanized fiber sheets, strips, tubes and rods. Papeteries (fancy writing paper) were almost treble in value compared with April shipments, but 23 per cent below those of a year ago.

The heaviest decreases contrasted with April occurred as follows: Toilet paper, and wrapping paper, each, 40 per cent; cash register and adding machine paper, and filing folders, index cards and other office forms, each 28 per cent; cover paper and boxboard (paper board and strawboard), each 22 per cent; blotting paper, 17 per cent, and losses from 10 to 15 per cent were shown in envelopes, other paper board, sheathing and building board, fiber insulating lath or board and boxes and cartons.

May exports of paper base stocks amounted to $324,289, an increase of 13 per cent over April shipments and a 10 per cent increase over a year ago. Exports of pulp wood were valued at $19,820, a 40 per cent increase over May, 1931, but a 43 per cent decrease over April. Exports of sulphite wood pulp were comparatively high. Amounting to $252,950, they represented increases of 35 per cent over April and 30 per cent over a year ago. Exports of soda wood pulp, on the other hand were 27 per cent lower than a month ago and 14 per cent lower than a year ago, while rags and other paper stock showed decreases of 40 per cent compared with May, 1931, and 20 per cent compared with the preceding month.

Imports of paper and paper products in May were valued at $9,283,794, being a slight increase over the preceding month, but a 23 per cent decrease compared with those of a year ago. News print imports, with a valuation of $8,541,416 represented an 8 per cent increase over April, but a decrease of 18 per cent compared with May, 1931, the incoming shipments from Germany, Norway, Sweden and Canada being considerably lighter, while those from Newfoundland and Labrador amounted to $995,690, against $84,786 in April. Imports of cigarette paper, books and covers were comparatively light, amounting to $308,693, against $1,017,675, a year ago and $684,958 in April. Imports of other wrapping paper, surface coated papers, greaseproof and waterproof papers, uncoated papers, decorated or embossed, tissue and crepe papers (not over six pounds to the ream), wall paper, and papier mache and pulp manufacturers were also very light, compared both with the preceding month and the corresponding month last year. Imports of Kraft wrapping paper were low compared with April, while imports of writing and drawing papers, leatherboard, test and wallboard and duplex and decalcomania paper, not printed, were heavy.

May imports of paper base stocks amounted to $3,137,868, a slight increase over April, but a 32 per cent decrease over those of a year ago. Imports of pulpwood were valued at $384,834, against $149,271 in April and $654,545 in May, 1931. Rough, peeled and rossed spruce imports were very heavy compared with April, but considerably lighter in each case compared with a year ago.

With the exceptions of bleached ground wood pulp and unbleached sulphate wood pulp, which registered gains of 65 per cent and 15 per cent, respectively, compared with April, all other imports of paper base stock were low compared with both the preceding month and the corresponding month last year.

INCREASE PROFITS BY RESEARCH

An investigation of 1,600 industrial research laboratories shows that the nation's industries are turning to research to increase profits during the depression, and to improve their position in anticipation of an upturn, according to Maurice Holland and W. Spraragen of the National Re-

search Council, Washington, D. C., who report the findings in *Industrial and Engineering Chemistry*, journal of the American Chemical Society.

An overwhelming proportion of the corporations from which data was obtained in this survey, conducted by the Council's Division of Engineering and Industrial Research, stated that research has been profitable even in the last two years. Research heads disclosed that creative chemistry is developing many new products

Summarizing the change in research expenditures of all industries in dollars, the report discloses that 51.3 per cent of the industries surveyed increased their research outlay in 1931. A decrease was reported by 30 per cent, and no change by 18.7 per cent.

The chemical industry made stronger showing than industry as a whole, the figures evidencing expectancy of prosperity. Forty chemical companies reporting their expenditures in dollars in 1931 reveal an annual average of $195,000.

Comparative figures are available in connection with thirty-four of these companies, as to their expenditure in 1929, when the average was $146,000. The figures for individual companies range from a few thousand dollars to several million. An average increase of 31 per cent is indicated.

Based upon the replies received to the Council's questionnaire, it is shown that out of forty-six reporting chemical companies 67.5 per cent increased their research expenditures in 1931 as compared with 1929, 8.7 per cent made no change, and 23.8 per cent decreased.

Formation and Folding Endurance

In its studies of the stability of paper, the Bureau of Standards, Washington, D. C., has noticed that in a few cases the fold retention values of commercial papers under the heat test have been different in the machine and cross directions by an amount that is greater than the experimental error. To study the possibility of this occurrence being related to the manner in which the paper is formed on the paper machine wire, an experimental machine run was made in which the speed was kept constant and the shake of the wire varied. The different lengths of the shake were 1/8, 3/16, and 1/4 inch, and its rapidity varied from 225 to 290 per minute. Samples of paper taken at different steps during the run were tested for folding endurance before and after heat treatment.

In none of the cases was there any variation between the respective machine and cross direction retention values of as great a magnitude as has been observed in the case of the commercial papers. In four cases the retention values in the two directions agreed within experimental error. In the other two cases they differed by 20 per cent, and this variation was apparently caused by the poorer formation, the initial machine direction folding endurance being nearly 5 times that in the cross direction as compared to about 2½ times for the others. In no case was the variation serious enough to produce a significant effect on the average retention value. The maximum difference of any one retention value from the average of all was 4 per cent. The best formation as regards approach to uniformity of strength in the two directions was obtained with the intermediate stroke length.

American Writing Report

The American Writing Paper Company, Inc., reports for six months ended June 30, 1932, net loss of $246,615 after taxes, depreciation, interest, etc. This compares with net profit of $12,648 equal to 14 cents a share on 89,266 no-par shares of $5 preferred stock in first half of previous year.

For quarter ended June 30, last, net loss was $142,189 after taxes and charges comparing with net loss of $104,426 in preceding quarter and net loss of $16,124 in June quarter of 1931.

Current assets as of June 30, 1932, including $592,956 cash, amounted to $2,167,314 and current liabilities were $179,683. This compares with cash of $469,430, current assets of $3,147,755 and current liabilities of 303,589 on June 30, 1931.

Income account for six months ended June 30, 1932 compares as follows:

	1932	1931	1930	1929
Net sales	$2,345,393	$4,130,839	$5,747,993	$6,442,742
Costs & exp.	2,276,025	3,837,075	*5,305,609	*6,013,183
Oper. profit	$69,368	$293,764	$442,384	$429,559
Other inc.	34,940	82,444	57,628	62,381
Total inc.	$104,308	$376,208	$500,012	$491,940
Depreciation	106,934	140,291	.....	.....
Interest	155,355	158,390	162,178	163,981
Federal tax	.....	1,725	30,715	32,070
Other deduct	88,634	63,154	58,607	60,709
Net loss	$246,615	†$12,648	†$248,512	†$235,180

* Includes depreciation. †Profit.

Balance sheet of American Writing Paper Company, Inc., as of June 30, 1932, compares as follows:

	1932	1931	1930	1929
Assets				
*Plt. & eqpt.	$11,954,960	$11,933,734	$11,655,840	$11,418,702
Cash	592,956	469,430	764,595	1,198,077
Nts. ac. & accts. rec.	536,814	875,059	1,195,643	1,322,289
Inventories	1,037,544	1,803,267	2,090,482	2,002,018
Investments	411,867	361,323	417,600	417,600
Defd. assets	7,636	11,366	12,428	19,405
Trdmks, etc.	1	1	1	1
Prepd. exp.	67,869	56,832	74,427	83,638
Total	$14,609,647	$15,511,012	$16,211,016	$16,461,730
Liabilities				
Capital stock	$9,278,572	†$9,278,572	$9,278,572	$9,278,572
Fund debt	5,188,500	5,208,500	5,391,000	5,466,000
Serial notes	153,000	305,700	457,100	610,000
Accts. pay.	107,985	196,585	303,983	387,069
Accrd. accts.	71,698	101,313	135,595	133,702
Fed. tax res.	.....	5,692	50,325	58,381
Deficit	190,108	‡414,650	‡594,441	‡528,006
Total	$14,609,647	$15,511,012	$16,211,016	$16,461,730

* After depreciation. † Represented by 89,266 no-par shares of $6 preferred, excluding 734 shares preferred held in treasury; and 188,077 no-par shares of common stock, excluding 2,748 shares common held in treasury and 9,175 shares in escrow. ‡ Surplus.

News Print Production for June

Production of news print in Canada during 1932 amounted to 161,368 tons and shipments to 164,310 tons, according to the News Print Service Bureau. Production in the United States was 85,399 tons and shipment 84,255 tons, making a total United States and Canadian news print production of 246,767 tons and shipments of 248,565 tons. During June, 25,721 tons of news print were made in Newfoundland and 1,013 tons in Mexico, so that the total North American production for the month amounted to 273,501 tons.

The Canadian mills produced 150,883 tons less in the first six months of 1932 than in the first six months of 1931, which was a decrease of 13 per cent. The output in the United States was 46,895 tons or 8 per cent less than for the first six months of 1931, in Newfoundland 6,243 tons or 4 per cent less, and in Mexico 1,593 tons less, making a North American decrease of 205,614 tons or 11 per cent.

Stocks of news print paper at Canadian mills totalled 50,029 tons at the end of June and at United States mills 35,502 tons, giving a combined total of 85,531 tons.

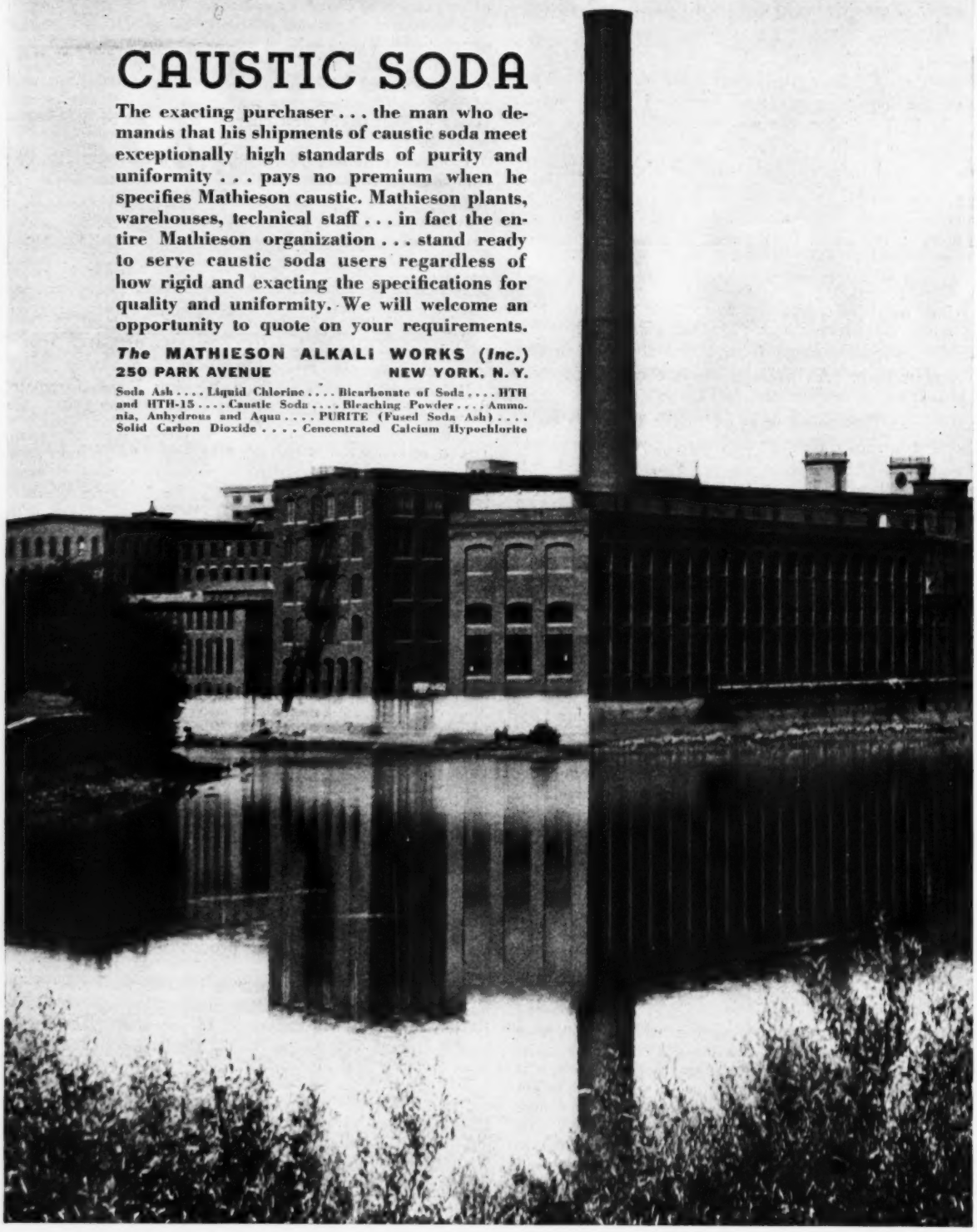
MATHIESON CHEMICALS

CAUSTIC SODA

The exacting purchaser . . . the man who demands that his shipments of caustic soda meet exceptionally high standards of purity and uniformity . . . pays no premium when he specifies Mathieson caustic. Mathieson plants, warehouses, technical staff . . . in fact the entire Mathieson organization . . . stand ready to serve caustic soda users regardless of how rigid and exacting the specifications for quality and uniformity. We will welcome an opportunity to quote on your requirements.

***The* MATHIESON ALKALI WORKS (*Inc.*)**
250 PARK AVENUE NEW YORK, N. Y.

Soda Ash . . . . Liquid Chlorine . . . . Bicarbonate of Soda . . . . HTH and HTH-15 . . . . Caustic Soda . . . . Bleaching Powder . . . . Ammonia, Anhydrous and Aqua . . . . PURITE (Fused Soda Ash) . . . . Solid Carbon Dioxide . . . . Concentrated Calcium Hypochlorite



Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pitch Problems in Sulphate Mills

By W. F. Gillespie[1]

To some extent, most mills have encountered the troublesome nature of "pitch" deposits. A number of interesting articles have appeared in the literature[2] discussing various phases of this problem, particularly as applied to the sulphite industry where the resins of the wood are not saponified and pitch accumulations are more likely to occur.

In the alkaline pulping processes the trouble may also become of major importance.

A study of the causes of the occurrence and means of elimination of pitch troubles was begun in May, 1931 at Bogalusa and the results obtained have been very satisfactory.

Occurence of Pitch Deposits

The chief trouble lay in the formation of spots on the paper machine wire, which, in addition to causing holes to appear in the sheet, caused ridges in the wire and cut down its drainage capacity[3]. The suction boxes also accumulated thin coatings of pitch. Frequent shut-downs were caused by such accumulations. In addition gummy deposits occurred in the beaters, thickeners, wet room chests and screens, but only occasionally have we found pitch deposits before the screen head boxes.

Nature of Pitch Deposits

In the early stages of the sulphate process the accumulations are of a gray, waxy appearance. They are soft and in our case smell strongly of kerosene. In progressive stages the pitches become darker in color, in general more brittle and lose the odor of kerosene. A great many samples were analyzed but as almost every sample gave a different analysis, the following general information is given:

(a)—All samples contain considerable lime in the ash. In wet room pitch as much as 85 per cent of the ash occurred as CaO. In general the amount of lime decreased progressively in samples from wet room to machine wire.

(b)—Alumina was present in all samples increasing in the ash as the sample was taken nearer the machine. Usually ½ per cent Al_2O_3 was present in the ash from wet room samples and as high as 23.5 per cent in samples from the suction boxes.

(c)—Mineral oil was steam distilled from several samples[4] with a strong kerosene odor,—0.5-1 per cent by weight.

(d)—Calcium soaps were isolated from the pitch.

(e)—Acids from the soap appear similar to pine tar acids.

Hypothesis for Pitch Formation

Having definitely established the presence of the above constitutents of our pitch, an hypothesis was formed to explain its formation. We had to account for the presence of lime, mineral oil, pitchy substances (resinates) and alum. Lime was present from two possible sources, namely, (1) lime sludge carried through the system from the causticizing operation and (2) calcium salts in the raw water supply. Mineral oils (kerosene or distillate oil) were used as foam killers. Resinous substances are present from the wood sizing operation and re-use of white water while alumina is added as alum is setting the size and excess is found in the white water.

The following is offered as a possible explanation of the part each of the above play in pitch formation:

Foams

The liquor remaining in the stock from the diffuser washing acts as a foam former. There is an optimum concentration at which foaming is most stable. Experimental evidence on other solutions shows that the concentration need not be high for greatest foaming[5] and practical experience in the sulphate pulping process indicates the same thing. The mechanical agitation by pumps, knotters, screens and violent flow causes the foam to be developed.

Lime Sludge

Analyses on all sources of water supply indicated a relatively soft water.[6] Analyses on our white liquor as fed to the digesters indicated varying quantities of lime sludge. It is well known that foams can be stabilized by the addition of solid particles. The solid particles collect in the interfaces, making the foam more viscous. It is possible that calcium carbonate may act as a stabilizer.

Kerosene or Distillate Oil

Kerosene or distillate oil is used as a foam killer. It is effective as all practical men are aware. But, at the same time, its use is attended by certain dangers. Kerosene alone will not foam but when, as in our case, foam formers and solid particles are present a stable emulsion may be formed. The kerosene acts as a collector to carry solid particles into the foam interfaces. This same principle is at the basis of ore flotation and is not unreasonable in this case. The presence of mineral oils in the pitch can be accounted for in this way. It is not, however, necessary

[1] Assoc. member TAPPI, chemical engineer, Bogalusa Paper Company, Bogalusa, La.

that there be a collector present to carry solid particles into the interfaces.

Resins and Resin Soaps

The acid resins originally present in the wood are almost completely saponified in the cooking process. Similarly in the presence of quantities of lime sludge calcium resinates may be formed. It is well known that alkali losses are large in the diffuser rooms in sulphate mills. Liquor in greater or less amount is always dumped with the stock into the chests and soaps may cling to the fibers.

Size of course is an added source of pitch and unprecipitated size may accumulate in the system. White waters will be found to contain considerable extractible material. It is our belief that the pitchy particles in the system cling largely to the foams formed by the liquor and stabilized by the lime sludge with the aid of the kerosene.

Alum

Examination of the acidity of our stock revealed that it was very alkaline before the addition of size. In our system a small amount of alum is added to the beater,—the remainder in the fan pump. Alum undergoes an hydrolysis and, in a highly alkaline stock, flocs of aluminum hydroxide are formed. It is our belief these flocs join up with the above mentioned resinous accumulations giving us our pitch as we find it.

Summarizing the above paragraphs, we believe the mechanical agitation of the stock, which contains organic compounds, causes foams which are stabilized by lime sludge particles carried into the interfaces by kerosene. The stabilized foams gather pitchy particles and flocs of aluminum hydroxide. The whole gummy mass is broken on the wire by suction and is either deposited on the wire or pulled through to the box.

Experimental Work

We grouped our studies under three headings: (a) general, (b) pulp mill and (c) paper mill.

A brief synopsis of the work done follows.

General

Our records enabled us to trace the lost time on the paper machine due to pitch as far back as the latter part of 1928. Plotting the monthly lost time for the years 1929, 1930 and 1931, indications were that there were no seasonal pitch troubles. In 1929 the greatest lost time occurred in January; in 1930 August showed the highest figure while in 1931 May was by far the worst month. We concluded, therefore, that pitch troubles in our case were not seasonal.

We attempted to classify the source of our wood supply. Our records were not complete enough to draw definite conclusions but the indications were that the regional source of our wood was not a deciding factor.

An exhaustive study of the several sources of our water supply showed clearly that the white water returned from the paper and board mills contained large amounts of benzene alcohol extractible matter 0.519 and 0.363 pounds per 1000 gallons, respectively. The re-use of this water evidently would build up pitch.[7] Part of the white water is returned to a well in our system and considerable foam collects on the surface of this well. By providing overflows at strategic points, most of the foam was run off to the ditch carrying with it large amounts of pitch. A little improvement was noticed in the paper mill when this provision was made.

From the chemical analyses of the water, we concluded no serious pitch trouble could be caused from other than the white water. Provision was made so that no oil drippings from machinery could enter the pulp system.

Pulp Mill Studies

Under this heading, we studied (1) white liquor clarity, (2) starch in causticizing, (3) pulp washing and (4) foam killers.

White Liquor Clarity

Early in June 1931, we found our liquor to contain 0.81 grams of solids per liter, mostly lime sludge, which at the rate of production then meant 992 pounds of lime sludge introduced into the digesters per 24 hours. By the end of July this figure had dropped to 0.33 grams per liter which at the same rate of production introduced 406 pounds of solids into the system daily.

Starch in Causticizing

In order to obtain a clearer liquor starch was used in causticizing. From 1 to 2 inches more liquor was obtained per tank and, at the same time, the solids content of the liquor fell to 0.258 grams per liter. Indications were, therefore, that the use of starch was an advantage in causticizing but the use of starch is a problem for each mill in which the cost must be balanced against the advantages gained. Though improvement in white liquor clarity was obtained, pitch troubles continued on the paper machines.

Pulp Washing

A colorimetric series was developed by taking a black liquor of known concentration and diluting it to various concentrations. Immediately before dumping each diffuser, a sample of the water was taken and matched against the standards and the color number recorded. On several occasions we were able to associate liquor in the dump with pitch on the machine.

Foam Killers

We use distillate oil, a low grade kerosene, as a foam killer on the screens. This material is effective but containing unsaturated hydrocarbons it was felt that oxidation might be taking place forming gummy compounds. Water white kerosene was substituted and later Varsol but the distilate proved the most economical and, as the pitch troubles did not decrease with the more expensive oils, we returned to distillate.

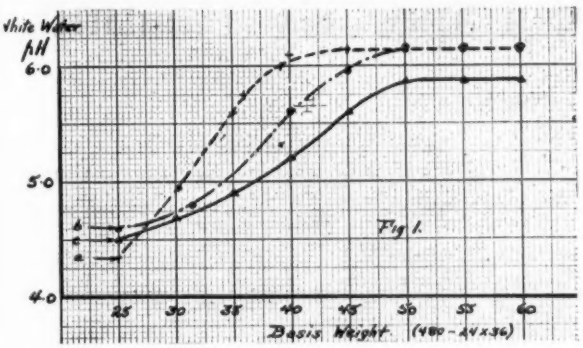
From our studies in the pulp mill, we concluded that, while the source of our trouble was there, the elimination of the grievance could probably best be brought about in the paper mill.

Paper Mill Studies

These included (a) alkalinity of stock before sizing and (b) pitch trouble in relation to basis weight.

These two studies led to the adoption of a procedure for preventing pitch accumulations on the wire.

The slushed stock as received from the wet room showed pH ranges of from 8.0 to 10.2. The consequences of adding alum to such stock can be readily seen from the equation $Al_2(SO_4)_3 + 6\ HOH = 2\ Al(OH)_3 + 3H_2SO_4$. The rate of hydrolysis of the alum solution would be greatly accelerated in the presence of excess hydroxyl-ion and, consequently, there existed the danger of aluminum hydroxide forming in flocs and clinging to the gummy agglomerations already present in the stock. To overcome this rapid hydrolysis, sulphuric acid was run continuously into the stock, the pH value being held slightly above the neutral point prior to the size addition.



Machine tenders had remarked that the greatest accumulations of pitch on the machine occurred while running on 35 and 40 pound basis weights. A study of the white water pH records showed a sharp rise in the pH curve for these weights, Fig. 1, curve a, which suggested a lowering of the pH on these weights. Curve b was adopted as standard and immediate improvement was seen on the paper machine. The greatest trouble was then observed to be in changing from 50 pounds and heavier weights to the lighter weights. Pitch collected on the wire during the running time on heavier weights and the spots showed up as soon as the light weights were run.

The pH curve was then lowered to (c) in July 1931 and since that time our pitch troubles have been decreased at least 95 per cent.

In our opinion the dispersion of the accumulated pitch by lowering the pH value of the stock and fixation on the fibers has been the most important factor in the elimination of pitch shut-downs on the paper machine.

Summary

(1) The nature of the occurrence is discussed.
(2) An hypothesis for "pitch formation" is suggested.
(3) A brief outline of mill studies is given.
(4) The source of "pitch" troubles has not been removed but the lost time shut-downs have been prevented by
  (a) removing pitch laden foams from the system,
  (b) controlling pH before alum is added,
  (c) adjusting pH on white water to insure dispersion and fixation of pitch.

Bibliography

(2) Potter, G. J. C. Paper Industry *1*, 90—1930. This contains references to a number of articles dealing with various phases of pitch problems.
(3) Bouyer, Le Papier 401-405—1931.
(4) Acknowledgment is made of the assistance of Mr. M. B. Amiss of the Standard Oil Company at Baton Rouge, La.
(5) Weiser, H. B. Colloidal Salts, P. 141.
(6) Acknowledgment is made of the assistance of Mr. S. R. Williamson of The Bogalusa Paper Company, Inc., for complete analyses of all sources of water supply.
(7) Wells, S. D. P. T. J., Oct. 16, 1924.

A. G. Wightman Leaves Knowlton Bros.

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., July 25, 1932.—Alfred G. Wightman has resigned as general superintendent of Knowlton Brothers, Inc. following a lengthy term of service. He plans to take a vacation before announcing his future plans. He came to this city in 1925 from Kalamazoo, Mich., where he had been employed in a similar capacity with the Hawthorne Paper Company. While in that city he supervised the construction of a new mill and was regarded as an authority on the production of high grade paper. He has been connected with the paper industry since early youth and has held responsible positions with numerous concerns.

Handbook of Chemical Microscopy

The long waited for second volume of the Handbook of Chemical Microscopy by Emile M. Chamot and Clyde W. Mason of Cornell University has recently been published by John Wiley & Sons, Inc., New York, N. Y.

Volume I, dealing with the principles and use of microscopes and with physical methods for the study of chemical problems was reviewed previously in the PAPER TRADE JOURNAL.

Volume II deals with chemical methods and inorganic qualitative analysis. Because of the very small samples required results are quickly obtained by micro-analysis and many of the tests for anions and cations are far superior in their certainty and dependability to the macroscopic tests for the same elements or compounds.

The authors have paid particular attention to the applicability of the tests to complex mixtures. Only reactions that are known to yield results under almost any conditions and in almost any combinations are mentioned. Ease of manipulation has been given special consideration. Tests requiring special apparatus or successive separations have been largely omitted. A large number of photomicrographs are included to show crystalline shapes.

The Handbook consists of 412 pages and may be obtained through the Book Department of the Technical Association of the Pulp and Paper Industry, 370 Lexington Avenue, New York, at $4.50 per copy plus postage.

Irwin J. Priest Dead

Irwin J. Priest, 46, one of the American authorities on the science of color, died Tuesday, July 19, in Washington, D. C. His death followed a cerebral hemorrhage.

Mr. Priest's work at the Bureau of Standards brought him recognition in the science of color and its application to paper, textiles, leather and other materials. He did much to develop the experimental and theoretical foundations necessary for accurate color standardization. He was most precise in developing precise color nomenclature, methods of color measurement and in basing color specifications upon accurately determinable quantities.

He was a charter member, secretary and president of the Optical Society of America and did much to promote the growth of that organization. Mr. Priest was born in Washington Township, Ohio, January 27, 1886. After graduation from Ohio State University he was appointed to the scientific staff of the Bureau of Standards on July 5, 1907. At the time of his death he was chief of the colorimeter work of the Bureau.

Burial was in Loudonville, Ohio. Mr. Priest is survived by his widow.

Control of Relative Humidity

The current issue of the *News Bulletin* of the Paper Section of the National Bureau of Standards, Washington, D. C., says: "An additional supply of reprints of the article entitled 'Control of Relative Humidity in a Small Inclosed Space' has been made available for free distribution by the Bureau of Standards, through the courtesy of the editor of PAPER TRADE JOURNAL, in which it was originally published. The original supply of reprints was rapidly exhausted due to the unusually large demand for information of this kind. The article describes suitable apparatus for maintaining constant humidity in a small space, especially in a small cabinet suitable for testing paper, together with a compilation of data for the prepation of solutions having the required relative vapor pressure."

Estimating Stability Of Paper By Heating*

By Royal H. Rasch[1] and Gordon O. Stone[1]

Abstract

For estimating the aging properties of paper, one of the most convenient tests so far devised consists in determining the loss in folding endurance after a heat treatment in air at 100 deg. C. for 72 hours. Very misleading results may be obtained unless sufficient care is exercised in the control of certain variables involved in the test. The reproducibility of the results of the test is discussed in relation to: (1) the lack of homogeneity of the structure of paper, (2) possible variations between different folding machines, (3) variations in humidity during testing, and (4) variations in oven conditions. Suggestions are offered for minimizing errors resulting from these variables, and data are included to show the degree of reproducibility to be expected when adhering to these suggestions.

Introduction

A test that has been used much for estimating the aging properties of paper consists in determining its stability by heating it for 72 hours in air at 100 deg. C. and then, after reconditioning, comparing its folding endurance with that of paper which has not been heated.[2] The percentage retention of folding endurance after such heating is taken as an index of the probable relative life of the paper. There are four principal sources of error influencing the retention value, (1) lack of homogeneity in the structure of the paper, (2) variations in folding machines, (3) variations of humidity during testing, and (4) variations in oven conditions during the heat treatment. The present discussion is concerned with some details in the technic of the test which have been found to have an important bearing on the reproducibility of the test results.

Method of Cutting Test Strips

It is obvious that the sample taken for the heat test should be as representative of the control sample as possible, as any difference in the original folding endurance of the samples is reproduced as an error in the retention value. It was thought that the most reproducible ratio of the folding endurance of heated and unheated paper could be obtained by cutting contiguous folding strips and using alternate strips for control and heat test samples. The desirability of this precaution was investigated by comparing the differences in folding endurance of contiguous test strips and the differences in folding endurance of strips at separated areas. These comparisons were made on three different types of commercial bond papers, chosen as representative of a fairly wide range of properties, (1) a rosin-sized sulphite paper, (2) a 50-per cent rag paper surface-sized with glue, and (3) a 100-per cent highly-purified wood fiber sheet surface-sized with glue. Ten sheets, 17 by 22 inches, were superimposed, and sets of folding strips were cut from them in the manner indicated in Fig. 1. The difference in average folding endurance of contiguous sets of strips is given in Table 1 for each of five different areas.

TABLE 1
COMPARISON OF FOLDING ENDURANCE OF CONTIGUOUS TEST STRIPS

Difference in folding endurance of the averages of 10 "A" strips and 10 "B" strips [1]

Area from which strips were cut [1]	Sample No. 1 Machine direction Per cent	Sample No. 1 Cross direction Per cent	Sample No. 2 Machine direction Per cent	Sample No. 2 Cross direction Per cent	Sample No. 3 Machine direction Per cent	Sample No. 3 Cross direction Per cent
I	12	2	0	17	18	6
II	14	21	6	25	6	13
III	7	7	2	9	0	8
IV	7	40	6	9	4	11
V	7	6	16	8	3	26
Average	9	15	6	14	6	13
Average of machine and cross directions	12		10		10	

[1] The test strips were cut as indicated in Fig. 1 from 10 sheets 17 by 22 inches.

In Table 2 the differences in average folding endurance at separated areas are given. In the latter case, since strips were cut from five different areas there are ten possible combinations for comparison. It is clear from the results in Table 1 and 2 that contiguous strips are likely to have folding endurances more nearly the same than strips cut from separated areas of the paper. The differences noted in the former case are, on the average, about one-half those in the latter case. With the view to obtaining as high a degree of reproducibility as possible the following method of cutting samples for the heat test is suggested. Four contiguous test strips are cut from the unheated paper sample to be tested, as illustrated in Fig. 2. By cutting the strips in this fashion from five sheets representative of the entire lot of paper, ten strips in each direction for

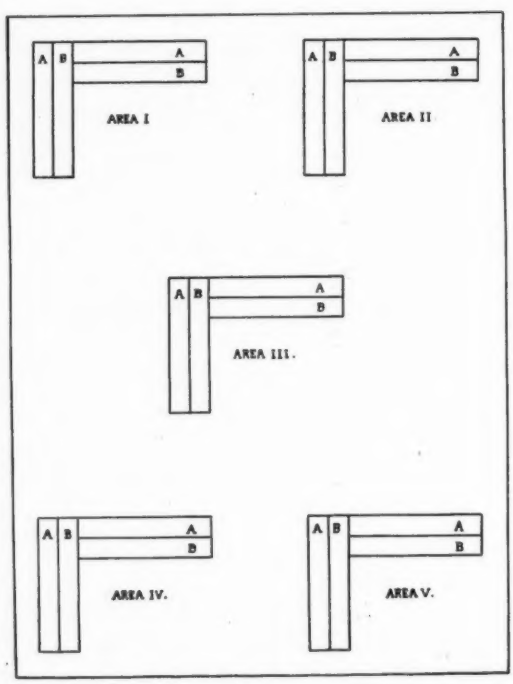


FIG. 1

Method of cutting test strips for comparing the differences in folding endurance of contiguous strips and strips cut at separated areas.

* Publication approved by the Director of the U. S. Bureau of Standards of the Department of Commerce, Washington, D. C.

[1] Research associate of the Brown Company, Berlin, N. H.

[2] R. H. Rasch, Accelerated Aging Test for Paper, B. S. Jour. Research, Vol. 7, (RP 352), pp. 465-475, Sept., 1931.

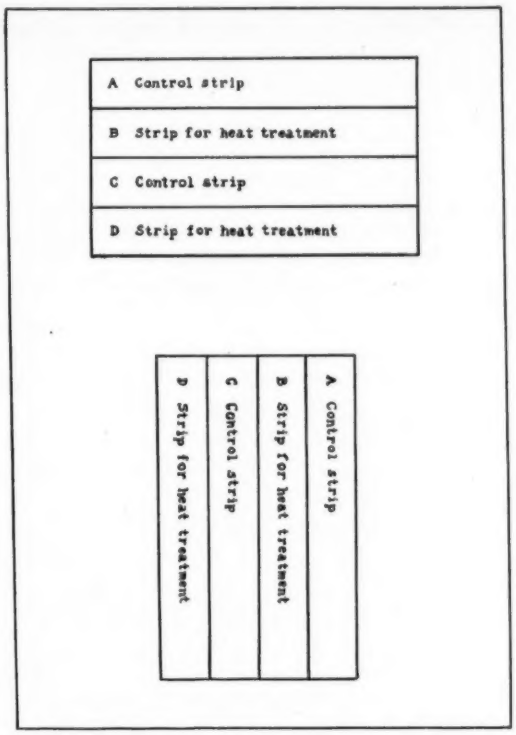

A Control strip
B Strip for heat treatment
C Control strip
D Strip for heat treatment
D Strip for heat treatment
C Control strip
B Strip for heat treatment
A Control strip

FIG. 2

Method of cutting test strips used for determining the loss of folding endurance on heat treatment.

both control and heat tests are available. It is preferable, especially if the paper is particularly "wild" or non-uniform to cut the four strips from each of ten sheets instead of from five.

Method of Testing Control and Heated Strips

Considering the complicated nature of the folding machine it is probable that no two machines will exactly duplicate each other regardless of how carefully they are adjusted and cared for. While evidence has been presented which indicates that errors resulting from lack of uniformity among different machines are small in comparison with those resulting from the non-homogeneous character of paper, it is nevertheless, a potential source of error the magnitude of which is difficult to determine.[3] If one folding machine were used for testing control strips, and a different one for testing heat-treated strips, an error, representing the dissimilarity of the respective machines, would be introduced into the retention value.

It is difficult to control the standard relative humidity of 65 per cent to a precision better than plus or minus 2, and this tolerance is permitted in the standard method for conditioning paper.[4] If the control strips happened to be tested when the humidity was at the minimum limit, 63 per cent, and the corresponding heat-treated strips at the maximum limit of 67 per cent, an error of about 12 per cent in the relative folding values would result if they were accurate otherwise.

In order to minimize the possibility of errors resulting from machine variations and the slight unavoidable variations in humidity, the following procedure in testing the folding strips is suggested. Assume, for example, that six machines, which we will designate A, B, C, D, E, and F, are available for the testing. The folders are started with control strips in A, B, and C, and with heat-treated strips in machines D, E, and F. As the control strips in A, B, and C break they are replaced by heat-treated strips. Similarly, the heat-treated strips in D, E, and F are replaced by control strips. The process is continued until all strips are tested. Thus, even if the relative humidity deviated somewhat from 65 per cent, both control and heat-treated strips would be equally subjected to the effects of the different humidities, also, since the sets of machines, A, B, C, and D, E, F, are used an equal number of times in the testing of control and heat-treated strips, errors due to machine variations are thereby practically cancelled in the retention value.

Heat Treatment

In making the heat treatment it is necessary to use an oven wherein the temperature is automatically controlled within narrow limits, and kept uniform throughout all parts of the oven. The latter is accomplished by means of a fan to circulate the air. Variations in the amount of fresh air have no influence on the test.[5] Interpolating between the effects of treatments of various papers at 90° C. and at 110° C. it was found that if the oven temperature is controlled at 100 deg. C. + 2 deg. C. the error from such variation would be well within the limits of experimental error. The folding strips for heat treatment are fanned out and clipped together in groups of five These groups are suspended at least ¼-inch apart on a rod so as not to interfere with the free circulation of air in the oven.

[3] Veitch, F. P., Sammet, F., and Reed, E. O., Folding Endurance of Paper, Paper, Vol. 20, No. 12, pp. 13-19, May 30, 1917.
[4] Paper Testing Methods, prepared by the committee on Paper Testing of the Technical Association of the Pulp and Paper Industry. Lockwood Trade J. Co., New York, 1929.
[5] P. F. Wehmer, Effect of Volume of Fresh Air in Heat Test for Stability of Paper, Paper Trade Jour., Vol. 94, No. 4, pp. 33-34, Jan. 28, 1932.
[6] R. H. Rasch, M. B. Shaw, and G. W. Bicking, Highly-Purified Wood Fibers as Paper-Making Material, B. S. Jour. Research, Vol. 7 (RP 372), pp. 765-782, Nov., 1931.

TABLE 2.—COMPARISON OF FOLDING ENDURANCE OF TEST STRIPS CUT FROM SEPARATED AREAS

	Differences in average folding endurance at separated areas											
	A strips [1]						B strips [1]					
	Sample No. 1		Sample No. 2		Sample No. 3		Sample No. 1		Sample No. 2		Sample No. 3	
Areas compared [1]	Machine direction Per cent	Cross direction Per cent	Machine direction Per cent	Cross direction Per cent	Machine direction Per cent	Cross direction Per cent	Machine direction Per cent	Cross direction Per cent	Machine direction Per cent	Cross direction Per cent	Machine direction Per cent	Cross direction Per cent
I and II	30	13	43	24	36	14	4	36	49	16	12	7
I and III	16	6	10	5	25	38	12	15	13	12	8	24
I and IV	24	52	11	1	33	35	20	10	5	8	20	39
I and V	23	11	33	6	39	27	48	15	18	3	25	5
II and III	14	8	33	19	11	51	7	22	37	4	4	31
II and IV	5	64	32	25	3	48	16	46	44	8	7	46
II and V	38	24	10	30	3	41	44	51	32	13	13	2
III and IV	8	57	2	6	8	3	8	25	7	5	11	16
III and V	51	17	24	11	14	11	37	30	5	10	17	29
IV and V	43	41	22	5	6	8	29	5	12	6	5	44
Average	25	29	22	13	18	28	23	26	22	9	12	24
Average, machine and cross directions	27		18		23		25		16		18	

[1] The test strips were cut as indicated in Fig. 1 from 10 sheets 17 by 22 inches. Computations are based on averages of 10 tests.

At the end of the period of treatment the rod holding the strips is transferred from the oven to the testing room where the strips are allowed to come to equilibrium with the atmosphere. All test strips should be handled as little as possible, especially just after the heat treatment when they are comparatively dry and brittle.

Reproductibility of Method

The degree of reproducibility of the retention value to be expected when observing the above described precautions was indicated in the course of another investigation.[6] Thirteen samples of surface-sized papers were subjected to duplicate aging tests, and three different base papers used for surface sizing experiments were given quintuplicate aging tests. The data which are contained in Tables 3 and 4 show that the retention values were reproduced to within approximately 8 per cent on the average. This degree of reproducibility is sufficient for all practical purposes. Because of the non-homogeneous character of paper, and the small area subjected to test, the individual folding endurance tests usually deviate very widely from the average. For this reason small changes in the average folding endurance on heating are without significance. Typical illustrations of the wide distribution of individual folding endurance results are shown in Fig. 3, which gives graphically the primary data obtained in the duplicate aging tests of five different papers. The papers cover a wide range of stabilities having average retention values of 100, 88, 84, 55, and 9 per cent respectively. The first three are considered to be papers of high stability, and the latter two of fair and low stabilities respectively.

TABLE 3
RESULTS OF DUPLICATE HEAT TESTS OF PAPERS

Sample number	Direction of test strips	Folding endurance after heating at 100 deg. C. for 72 hours, in per cent of initial [1] Test No. 1 Per cent	Test No. 2 Per cent
169	Machine	92	112
	Cross	101	92
	Average	97	102
170	Machine	91	82
	Cross	85	102
	Average	88	92
171	Machine	96	77
	Cross	96	83
	Average	96	80
172	Machine	85	85
	Cross	86	93
	Average	86	89
173	Machine	91	96
	Cross	98	92
	Average	95	94
174	Machine	93	68
	Cross	75	119
	Average	84	94
175	Machine	87	83
	Cross	80	83
	Average	84	83
176	Machine	92	92
	Cross	115	104
	Average	104	98
177	Machine	79	110
	Cross	91	61
	Average	85	86
178	Machine	84	89
	Cross	96	101
	Average	90	95
179	Machine	91	92
	Cross	98	80
	Average	95	86
180	Machine	95	102
	Cross	84	110
	Average	90	106
181	Machine	101	111
	Cross	73	103
	Average	87	107

[1] Each machine and cross direction value is the ratio of the average folding endurance of 10 heated strips and 10 unheated strips.

TABLE 4
RESULTS OF QUINTUPLICATE HEAT TESTS OF PAPERS

Sample number	Direction of test strips	Folding endurance after heating at 100 deg. C. for 72 hours, in per cent of initial [1] Test No. 1 Per cent	Test No. 2 Per cent	Test No. 3 Per cent	Test No. 4 Per cent	Test No. 5 Per cent
785	Machine	93	104	90	94	105
	Cross	98	102	83	96	117
	Average	96	103	87	95	111
796	Machine	80	86	87	82	90
	Cross	81	78	99	97	74
	Average	81	82	93	90	82
787	Machine	79	82	79	72	72
	Cross	85	89	75	88	80
	Average	82	86	77	80	76

[1] Each machine and cross direction value is the ratio of the average folding endurances of 10 heated strips and 10 unheated strips.

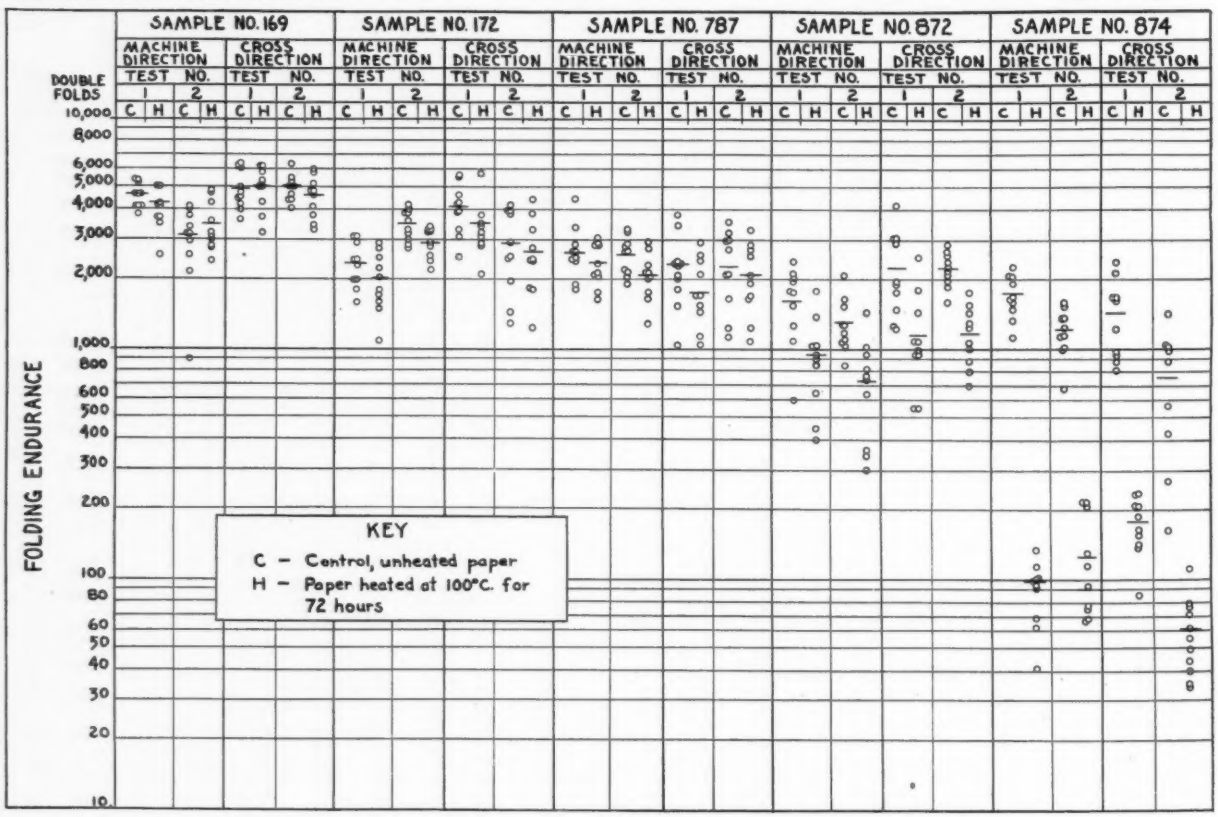


FIG. 3
Distribution of folding endurances of individual specimens of heated and unheated papers.

Index, Technical Section, Paper Trade Journal, Vol. 94

January to June, 1932

Prepared by Clarence J. West, Chairman, Committee on Abstracts and Bibliography

Bibliography

The page numbers in the following index refer to the continuous paging of the Technical Section and have no relation to the paging of the individual numbers of the PAPER TRADE JOURNAL.

References to the abstracts are preceded by the letter A and those to the patents by the letter P. Other entries refer to original articles appearing in the Technical Section; the author entries for these articles are given in CAPITALS. No author entries are given for the abstracted articles or patents.

To Facilitate Reference

In order to facilitate reference to the individual numbers of the PAPER TRADE JOURNAL, the following table is given, showing the pages of the Technical Section appearing in each of the 26 numbers for Volume 94 (January to June, 1932):

No. 1	Jan. 7	1- 12		No. 14	Apr. 7	178-189	
No. 2	Jan. 14	13- 24		No. 15	Apr. 14	190-201	
No. 3	Jan. 21	25- 30		No. 16	Apr. 21	202-215	
No. 4	Jan. 28	31- 42		No. 17	Apr. 28	216-229	
No. 5	Feb. 4	43- 54		No. 18	May 5	230-243	
No. 6	Feb. 11	55- 66		No. 19	May 12	244-255	
No. 7	Feb. 18	67- 97		No. 20	May 19	256-267	
No. 8	Feb. 25	98-111		No. 21	May 26	268-279	
No. 9	Mar. 3	112-125		No. 22	June 2	280-291	
No. 10	Mar. 10	126-137		No. 23	June 9	292-307	
No. 11	Mar. 17	138-149		No. 24	June 16	308-319	
No. 12	Mar. 24	150-161		No. 25	June 23	320-331	
No. 13	Mar. 31	162-177		No. 26	June 30	332-343	

A

AASEN, ASBJORN. Sulphur burning equipment for sulphite mills 198
Abietic wood, papermaking material A217
Absorbent paper P283
Abstracts and bibliography committee 185
Acetic acid
  Reagent 112
  Recovery from wood in digestion P311
Accident prevention 303
Acidity of paper, determination of 120
Adhesive paper P281
Agitating systems 77
Agitation, effect on freeness 77
Agitator, Flinger type 77
Air, moisture carrying capacity 96
Air conditioning A163, A203, A204, A256
Air preheater A204
Alcohol, digestion of wood with A180
Alcoholic potash, reagent 112
Alder wood, papermaking material A217
Alignment charts A205
Alkali
  Alloys, action on A256
  Black liquor, recovery from P125, P165
  Continuous recovery A218
  Recovery, patent review 187
Alkali cellulose A111
Alkaline process A123, A124, P123, P124, A218, P218, P320
  Catalysts for P125
Alloy cast iron A255
Alloy steels A255
  Digester lining 267
  Sulphite industry, use in 31
Alloys
  Alkaline liquors, effect of 60, A256
  Corrosion in paper mills 60
  Ferrous, corrosion of 60
  Non-ferrous, corrosion of 60
Aloxite, pulp stones from A216, 304
Alumina cream, reagent 112
Alum and size, order of addition 319
Aluminum alloys, knotter plates from P233
Aluminum sulphate A43
Alums A43
Alpha cellulose
  Determination A256
  Production P320
American Society for Testing Materials, activities 326
Ammonia
  Cornstalks, pulping of P123
  Spruce, pulping of P139
  Straw, pulping of P123
Ammonium acetate, reagent 112
Ammonium carbonate, reagent 112
Ammonium chloride, reagent 112
Ammonium hydroxide
  Reagent 112
  Wood digestion with A3
Ammonium molybdate, reagent 112
Ammonium nitrate, reagent 112
Ammonium oxalate, reagent 112
Ammonium phosphate, reagent 112
Ammonium polysulfide, reagent 113
Ammonium sulphate, reagent 113
Ammonium sulphide, reagent 113
Analytical methods, use in control A151
Analytical reagents 112
Anti-ambi thermometer 81
Arsenous acid, standardization 274
Artificial flowers, paper for P282
ARTZ, W. H. Electrical developments 130
Asbestos
  Insulation value 134
  Kelp, use of, with P282
Asclepias syrica, papermaking material A138
Aspen wood, papermaking material A217
Asphalt paper A255, A309

B

BACON, R. F. New sulphur burner 166
Bagasse
  Boards from A110, A164, P192
  Digestion of P124, P125
  Fermentation process P3
  Fungicide for P110, P310
  Magnesium bisulphite, digestion with P321
  Papermaking material A138, 341
  Storage P110, P310
  Sulphur dioxide, treatment with P321
BAIRD, P. K. Use analysis subcommittee report 338
——Use requirements committee report 336
——*See also* Doughty, R. H.
Bakelite in fiberboard P281
BALCH, SEVERNS. *See* Milham, E. G.
BALDWIB, R. T. Chlorine and bleach 220
BALL, A. L. Aloxite brand pulpwheel 304
Bamboo
  Digestion, continuous P311
  Papermaking material A138
Bamboo pulp
  Beating A230
  Tearing strength A230
Barium chloride, reagent 113
Barium hydroxide, reagent 113
Barker P193
  Feeding device P152
  Knife type P233
  Thorne P233
BEARCE, E. F., and MACDONALD, R. G. Equipment developments in 1931 ..... 67, 130
Bearings
  Machine rolls P254
  Micarta 299
Beater P3, P179
  Bed-plate P4, P230
  Breaker A140, P230
  Consistency regulating device P4
  Continuous P4, P231
  Deflector plate P4
  Drain tables A179
  Grooves in A4
  Hood structure P231
  Pressure, adjustment of P230
  Revolving cross A179
  Roll adjuster P230
  "Stock maker" 62
  Substitutes for 283
  Vertical A140
Beater bar P4
Beater roll P4, P231
  Bandless A140
Beater sizing A43
Beating
  Bamboo pulp A230
  Batch A230
  Bursting strength, effect on A190
  Continuous 62
  Paper properties, effect on A3
BERNHARDT, C. P. Electron tubes in paper industry 98
Bewoid sizing process A150, 318
Bibliography
  Hygrometry 24
  Paper coating 330
  Pulp testing, 1931 323
BINGHAM, R. V. Agitating methods and consistency control 77
Bingham agitating system 77
Birch wood, papermaking material A217
Bitumens
  Insulating value 134
  Pulp, mixing with P282
Bjorkman number A191
Black gum pulp
  Screen analysis 116
  Strength data 114
Black liquor
  Alkali, recovery of P125, P165
  Patent review 187
  Calcining P219
  Causticizing 89
  Chlorine, determination of A43
  Distillation A125
  Evaporation 40, P125, P165
  Fish, effect of A321
  Foam, chemicals from P311
  Forced circulation evaporation A219
  Furnace P139
  Oils from P218
  Recovery of products from P124
  Silica, removal of P125, P139
  Smelting of P139
  Soap, recovery of P321
  Stock, addition to P140
Bleach control, equipment for A43
Bleach liquor
  Alkaline residual liquors, preparation from P216
  Alloys, effect on 60
  Analysis 335
  Electrolytic preparation A216
  Iron, action on 39
Bleach sludge, analysis 335
Bleaching A164, P164
  Chlorine consumption, control of A180
  Concrete rolls, stages on A180
  Counter current P216
  Developments in 1931 220
  Kraft pulp 143, P333
  Multiple stage A180, P216
  Pressure P216
  Tests for A190
  Viscosity control for A140
Bleaching powder, analysis 334
Bleaching test A140
Blancometer A257
Blotting paper, rubber A192
Blow pit
  Carbon beams for 106
  Emptying P152
Board
  Artificial A192
  Bagasse for A110, A164, P192
  Drying A55, P231
  Flue gas for A181
  Fiber and cement P192
  Fireproof P153
  Formation roll P162
  Insulation A192, P192
  Manufacture P259
  Multi-ply P276
  Reinforced P162
  Seaweeds in A164
  Sugar cane for A164
  Sugar cane straw in A110
  Waterproofing P162
Board drier, sheet conveyor for P276
Board forming machine, Downingtown 73
Board stock, testing 160
Boiler, high pressure A204
Boiler control, automatic A163
Book paper, permanence studies A191
Book stock, deinking 239
Booms A255
BOOTH, L. M. Sheet formation control 255
Boots, stiffening material P282

Brazil, papermaking materials of..... A164
Breast roll 67
British standard sheet machine..... A256
Brobeck circulation system..... A178
Broke, elimination of..... A254
Broussoneti papyrifera, digestion of P311
BROWN, ROGER B. Flobility and springback of pulp and board..... 170
Building board P259
Asphalt coated P276
Bullwiller cooking process..... A3
Burettes, calibration 270
Bursting strength
Beating and A190
Official method A151
Paper composition and..... A190
Tester P280

C

CABLE, DONALD E. Pulp testing committee report 289
——Pulp testing developments in 1931.... 322
Cable paper A192
Cable insulation 137
Calcium carbonate
Coating material 330
Filler, use as.....P127, P128
Calcium chlorate, digestion of wood with.. P3
Calcium chloride, reagent..... 113
Calcium hydroxide, reagent..... 113
Calcium hypochlorite, bleaching with..... A180
Calcium magnesium bisulphite liquor, production P321
Calcium sulphate, coating material.....P282, 330
Calcium thiocyanate for fiber determination A128
Calender roll P152
Nickel alloy for..... 40
Weight, regulating P254
CALKIN, JOHN B. Fiber composition weight factors 244
CAMP, A. D. Carbon uses in pulp and paper industry 105
Cana brava papermaking material..... P139
Canadian sheet machine..... A256
Carbon
Digester lining, use as.....105, 267
Mills, use in..... A232
Properties 105
Carbon beams 106
Carbon paper P153, P162, P281
Carbonate fillers P127, P128
Cardboard
Creasing P193
Dyeing apparatus P258
Manufacture A203, P276, P281
Properties A203
Waterproof P309
Carrizo, papermaking material..... P139
CARSON, F. T., and WORTHINGTON, F. V. Hygrometry in paper testing.... 16
CASCIANI, FERRI. *See* Libby, C. E.
Casein
Analysis 268
Coating material 330
Developments in 1931..... 221
Paints P309
Cast iron
Alloy, in paper industry..... 37
Caustic soda, action of..... 38
Corrosion in acid plant..... 37
Hydrogen sulphide, corrosion by..... 37
Nickel, effect on..... 37
Sulphur dioxide, corrosion by..... 37
Water, corrosion by..... 38
White water, corrosion by..... 38
Caustic recovery plants, continuous..... 88
Caustic soda, action on iron..... 38
Causticized liquor, clarification..... 89
Cellophane A258
Permeability A309
Cellulose A255
Acids, action of, on..... A165
Adsorption force for ions..... A111
Bamboo A138
Chlorine, effect of, on..... A123
Constitution A310
Depolymerized P165
Determination 97, 119, A181
Drying with sulphur dioxide..... P181
High alpha P2
Kaoliang A310
Low viscosity P320
Microscopy of A280
Ramie, density of..... A310
Rice straw A310
Sodium hydroxide, action of..... A310
Compounds of A11
Solubility of A310
Solubility number A151
Surface conductivity A111
Swelling by electrolytes..... A217
Synthetic A217
Uses A255
Water interface A111
Cellulose acetate in paper..... P282
Cement
Acid-proof A232
Destruction in mill..... A203
Centrifuge drum P254
Centrifuge for cleaning pulp..... P254
Ceramic materials, insulation value..... 134
Chain drives :..... A203
CHAMPION, C. H. Clay and fillers.... 221
Chemipulp process P126
Chemists, patent law for (book review).. 111
Chestnut chips, digestion of..... P125
CHIDESTER, G. H., and McGOVERN, J. N. Effect of relatively high sulphur dioxide concentration in sulphite pulping 44
See also Monsson, W. H.
China clay A181
Chip board, specific gravity, nomograph... 13
Chipper P152, P233
Chloric acid, digestion of wood with..... P3
Chlorination equipment 75
Chlorine
Bleaching with A180
Developments in 1931..... 220
Wood permeability, effect on..... A217
Chlorine control, equipment for..... A43
Chlorine process P124, A139
Chlorolignin P124, P311
CHRISTENSEN, ANDREAS. Alloy steel in sulphite industry..... 31
Chrome alloys, corrosion..... 60
Chrome-nickel alloys
Calcium bisulphite liquor, action of.... 32
Corrosion 60
Sulphite industry, use in..... 32
Chromium plating A163
Cigarette paper P309
Composition for A193
CLARK, J. d'A. Calibration of Elmendorf tearing tester 1
Clay, developments in 1931..... 221
Cloth, waterproof P309
Coal
Analysis 5, A204
Calorimetric determination 10
Heating value, determination of..... 10
Laboratory sampling 8
Proximate analysis 8
Sampling 5, A204
Utilization chart 206
Coal cost, nomograph..... 13
Coated paper P282
Developments, bibliography 330
Drying 50, A231
Air volume required..... 96
Heat requirements 95
Overdrying 53
"Reflex" drying system..... 51
Strength factors 28
Coating machine 50, P276
Immersion type 28
Coating materials
Particle size 29
Rate of settling 29
Vegetable proteins as..... P282
Viscosity 30
CODWISE, PHILIP W. Water resistance of papers 46
COGHILL, JAMES. Stuff preparation, developments in 1931..... 283
Colloid mill 67
Colin pulp press..... A231
Color analyzer
Blancometer for A257
Photo-electric 102
Recording 131
Colorimeter A43
Composition flooring P281
Compressed air in mills..... A204
Concrete, reinforced..... A255
Condensate removal 68
Beloit high speed..... 214
Condenser paper P163
Conduit, paper P258
Consistency of pulp, determination of..... A129
Consistency regulator.....74, A140, P252, P253, A254, A255
Beater P4
Bingham 78
Flobility, effect of..... 172
Haspa A202
COOK, O. L. Lime and limestone..... 222
Copper number
Chlorine consumption and..... A190
Paper, determination of..... 189
Pulp A191
Corn cobs, hot grinding P310
Corn leaves, papermaking material..... A217
Cornstalks
Ammonia, digesting with..... P123
Digestion of P320
Fermentation process P3
Fibers of A164
Fungicide for P110
Insulating board A259
Papermaking material A217, A218, 339
Pulping P310
Storage P110
Cost standards A164
Cotton linters A255
Production 342
Rayon mixture, analysis..... A128
Cotton waste, papermaking material..... P219
Uses A310
Couch roll A152
Cranes A163
Crepe paper, winding..... P308
CURTIS, F. J. Pyrites..... 223
——Salt cake 224
——Sodium aluminate 224
Cut-off, travelling 71
Cutter, guard for..... P276
Cylinder machine P275

D

Dandy roll A153
High speed 70
DARLING, A. G. Report of subcommittee on production and transmission of heat and power..... 201
DAVIS, D. S. Nomographic charts.... 13
DAVIS, H. E. Preserved wood for paper mill construction 225
Decalcomania paper P259
Deinking process P110, P217, 239, P310
Circulating boilers A110
Costs A110
High consistency 241
Losses 239
Rotary boilers for..... A110
Snow-white A138
Steam requirements A110
Wastes from A110
Winestock process A110
De-ion grid 131
Delthirna sizing process..... 318
De MERS, C. D. Grinder temperature control 84
——Temperature and pressure control in pulping wood 292
Deutsch press P162
Dewatering screen, rotary..... P55
Diaphragm, telephone P281
DIFFENBACH, E. C. Insulation for electrical equipment 133
Digester
Acid-proof stone lining..... A204
Alloy steels in.....31, 267
Carbon linings 67, 105, 267
Cascade P333
Circulating system P152, P233
Reversible P152
Corrosion in 38
Cyclic circulation in..... P274
Emptying, shower water arrangement.. P152
Filling process P152, P232
High frequency electric vibrations in.. P219
Insulation of A202
Internal circulation in..... P202
Linings 31, 105, A204, A232, 267
Carbon blocks for.....67, 105, 267
Liquor circulation in..... P232
Liquor distributing device..... P232
Liquor, removal of..... P274
Percolating liquid in..... P232
Safety valve A202
Screen P232
Sulphate, corrosion of..... A178
Top relief valve..... P126
Dills beater roll..... P140
Disintegrators A256
Doctor
Lodding 71
Thin-blade 71
Vickery 71
Doctor-blade 70
Micarta for 298
Doronoki
Analysis A309
Composition A110
DOUGHTY, R. H. Effect of fiber length on sheet properties 114
——Elastic properties subcommittee report 336
——, SEBORG, C. O., and BAIRD, P. K. Volumetric composition of paper. Composition of air fraction..... 312
Douglas fir, sulphite pulp from..... P126
Downingtown extractor 72
Dowmetal 267
DRAKE, C. W. Synchronized supercalender and winder drive..... 90
Dresden University, paper machine laboratory A191
DRESHFIELD, A. C. Non-fibrous raw materials in 1931..... 220
——Rosin size and engine sizing..... 223
Drier
Condensate removal 68
Explosion of A55
Heat requirements A128
High vacuum A181
Steam, regulation of..... A152
Variables affecting 227
Yankee A231
Drier cylinder, explosion..... A203
Drier performance, paperboard, evaluation.. 227
Drier roll, nickel alloys for..... 39
Drives
Chain A203
Electric 90, A163, A203, P203, P254
Supercalender 90
Winder 90
Drum P254
Drum mill P128
Dry indicator test..... 46
Drying
Board P231
Coated paper A231
Heat requirements 95
Extractors in 72
Hot water for..... A151
Roofing board A151
Surface sized papers..... A231
Durator, permeability of..... A309
Duro-micrometer A163
Dust problems 66
Dyes
Developments in 1931..... 222
Fastness of A150
Off-shade losses A150

E

Education, technical 314
Effluent losses, nomograph..... 14
Electric boilers A204

Electric controls A163
Electric drives 90, A163, A203, P203
Sectional P254
Electrical condenser, paper for..... P283
Electron tubes 98, 130, A255
Elmendorf tearing tester, calibration..... 1
Emery paper P257
Engine sizing, developments in 1931..... 223
Enso number A191
Equipment, service record..... 246
Eroyangi, composition A110
Esparto, alcohol-chloride treatment..... P3
Ethyl chloride in alkaline process..... P218
Eucalyptus as papermaking material..... A110
Evaporation
Multiple-effect 40
Steam economy in..... 40
Evaporator
Corrosion in 41
Multiple effect P218
Explosion process P219
Extractor, Downingtown 72
Ezoyangi, analysis A309

F

Fabrics, insulating value..... 133
Farm wastes, paper from..... P320
Farnsworth drying system..... A181
Fatsia papyrifera, papermaking material.... A192
Feedwater control 82
Feed water control valve
Bailey three-element 83
Selsen hydraulic 83
Fehling solution
Ahlm's modification 113
Reagent 113
Soxhlet modification 113
Felt life, effect of chlorination of water.... 36
Felts 250
Automatic compensation P275
Dryer P231
Impregnating P281
Life of 186
Porosity, effect of..... 250
Stretching P152
Ferric chloride, reagent..... 113
Ferric nitrate 271
Festooner 51
Fiber length, effect on sheet properties.... 114
Fiber stains A128
Fiberboard, cylinder machine for..... P275
Fibers
Determination A128
Relative humidity, effect of..... 19
Swelling of A151
Fibrator, Liebeck 76
Fillers P127, P128
Alkaline P43, P127, P128, P334
Developments in 1931..... 221
Lime sludge as..... P333
Filter, Water, Kieg-Cochrane..... A255
Filtration plants A255
Finish
Bekk apparatus A257
Paper, testing of..... A257
Flasks, calibration of..... 270
Flax straw, papermaking material..... 340
Flint pebbles, use in pebble mill test..... A128
Flobility of pulp 170
Flue gas, solids in.....65, A255
"Flying ink" 175
F. M. P. forced circulation system..... 67
Food, wrapper for..... A193
Formaldehyde, analysis A205
FOSTER, P. M. Recent trends in the design of paper machinery..... 213
Fourdrinier machine A232, P232
History of A153
Freeness, effect of agitation on..... 77
Freeness tester P280
Schopper-Riegler A190
Williams P280
Freeness testing 306
Fuel
Local, utilization of..... A204
Utilization 206
Fungi, effect of sulphite waste liquor on... A179
Furnace, black liquor..... P139

G

GARDNER, A. T. Progress in the manufacture and control of groundwood..... 306
Gasoline, analysis A205
Gear drive, hypoid spiral.....68, 70
Generator
Low frequency 132
Turbine driven 130
Voltage regulator 132
GILLESPIE, W. F. Graphical calculation of machine production..... 27
Glass, insulation value..... 134
Glassware, calibration 270
Glycerol in wood digestion..... P125
Glycerol solution, viscosity of..... 246
Glycol-lignin, ethers of..... A111
Golden rod stalks, papermaking material... 325
Gramineae, papermaking material P321
Grasses, papermaking material..... P125
Greaseproof paper A193
Green liquor
Alloys, effect on..... 60
Causticizing P139
Clarification 89
Grid glow tube..... 103
GRIFFIN, R. C. Materials testing committee report 238
Grinders
Automatic control P216, P217
Continuous A123, P139, A139, A165
Feed device P138
Heating coil for..... P139
Load regulator P139
Magazine, grinder for..... P123
Pocket A123, A139, A165
Power for A163
Recording regulators A126
Recording thermometer 84
Screw press for..... P217
Sharpener P123
Temperature control 84, P123
Twin A216
Wood feeder for.....P216, P217
Grindstones
Artificial 304
Temperature measurement P139
Guide roll, electrically operated..... P252
Gutta percha, insulating value..... 135

H

HAMILL, G. K. Appearance properties subcommittee report 337
HAMM, J. A. New Miami Uni-flo vat.. 297
HAMMOND, H. M. Quick acting feed water control 82
HARDIGG, J. C. Solids in boiler flue gas 65
Heat and power committee report..... 290
Heating by hot water..... A128
Hemp, papermaking material..... 341
HINCKLEY, W. T. Steam saving by forced circulation evaporation..... 40
HIRSCHKIND, W. Limestone and salt cake on the Pacific Coast..... 225
Histoxyl A192
Hoists A163
Hook pine, papermaking material..... A164
Hovey forced circulation system..... 67
Humidity, relative 18
Control of A151
Instruments 81
Humidity cabinet A151
Hydration A140
Boiling method A129
Measurement 160
Pebble mill test..... A128
Hydrators 283
Hydrochloric acid
Reagent 113
Standardization 272
Hydrogen ion colorimeter..... 248
Hydrogen ion concentration.....A129, A180
Wires, effect on..... 250
Hydrogen ion control equipment..... A255
Hydrolysis number A181
Hydrophytes, papermaking material..... A164
Hygrometer
Dew point 20
Filament 20
Hair 20
Hygrometric data, expression of..... 17
Hygrometry, use in paper testing..... A257

I

Indicators 271
Induction motors, power factor..... 235
Ink resistance of papers..... 174
Institute of Paper Chemistry..... 314
Insulating board
Cornstalks A259
Porous P259
Insulation materials P162
Classes 133
Electrical 133
Materials for 133
Testing 135
Inventions, rights in..... 194
Iodine
Fiber stain, use as..... A128
Standardization 273
Iron
Bleach liquor, action of..... 39
Paper deterioration, effect on..... 149

J

Japanese rice paper..... A192
Jenssen-Brobeck forced circulation system.. 67
Joachim number A191
Jordan P3
Jordan filler P4
Jordan plug P4, P230, P231
Position, regulation of..... A140
Jute, papermaking material..... 341

K

Kayu baru, bast fiber of..... A309
Kayu selemoh, papermaking material..... A310
Kelp and asbestos, use of..... P282
"Klima" air conditioner..... A256
KLOSSON, M. M. Pumping wood pulp and paper stock 85
Knotters P152, P202
Plates P233
KNOWLTON, F. H. Starches..... 224
Kollergang P4
Kraft production, nomograph..... 14
Kraft pulp
Alkaline purification P2
Bleaching 143, P333
Bleached A164
Chlorine, effect of..... 147
Manufacture P320
Properties A218
Purification P124
Sulphite liquor for..... P127
Sulphite purification P2
KRESS, OTTO, and DAVIS, R. L. Bleaching of kraft pulp..... 143
KUMLER, R. W. Wax sizes..... 224

L

Laboratory
Dresden University A191
Northern Paper Mills..... A163
Lactic acid, size test, use in..... 262
Laminated sheet material..... P282
Lead acetate
Basic, reagent 113
Reagent 113
Leather board
Manufacture 35
Shrinkage 35
Shrinkage problem 35
Leather board mill, chlorination in..... A259
LEWIS, HARRY F. *See* Rowland, B. W.
LIEBY, C. E., and CASCIANI, FERRI. Size testing of paper boards..... 260
Liebeck fibrator 76
Light relay and recorder, photoelectric.... 101
Lighting, automatic control by photoelectric cell 101
Lignin
Chlorine, removal with..... P311
Determination A110
Isolation, methods of.....A110, A165
Pulps, determination in.....A181, A190
Pulps, influence on..... A332
Rosin, artificial, from..... A123
Lime
Developments in 1931..... 222
Slaking 88
Lime sludge as fillers.....P128, P333
Logs, counting device..... P193
"Lo-Kva" motor 131
Lubrication
Costs A255
Packings A255
LUNDRIGAN, JOHN. Accident prevention 303

M

McCorkindale drying method..... A231
MACDONALD, R. G. *See* Bearce, E. F.
McGOVERN, J. N. *See* Chidester, G. H.
McGREGOR, G. H. Effect of alkaline liquor on some alloys..... 60
Machine drive, sectional..... 130
Machine production
Graphical calculation 27, A232
Nomograph 32
Machinery developments in 1931..... 67
McKEE, R. H., and SHOTWELL, J. S. G. Rate of moisture regain in paper 286
—— Temperature effects on equilibrium between paper moisture content and humidity 284
Magazine paper, effect of storage condition 251
Magazine stock, deinking..... 239
Magnesia mixture, reagent..... 113
Magnesia wash solution, reagent..... 113
Magnesium ammonium chloride, reagent.. 113
Magnetic clutch 215
Magnetic gauge, Schuster..... 75
MAKARA, FRANK. *See* Peterson, F. C.
Malone engine A255
Marble, insulation value..... 134
Marking roll P253
Marx-Elmendorf tearing tester, calibration 1
Masonite process A310
Materials of construction committee report.. 49
Material testing committee report..... 238
Mechanical handling A163
Pneumatic A204
Mechanical process, grinding temperature.. 292
Mechanical pulp
Alkaline treatment P123
Bleaching A43
Deterioration A138
Manufacture A165
Mercerization A217
Norwegian research on..... A165
Preservation A138
Sodium chloride in manufacture of.... P123
Theory A165
Mercuric chloride, reagent..... 113
Methoxyl group, determination..... 243
Methyl orange indicator..... 271
Methyl red indicator..... 271
Mica, insulation value..... 134
Micarta 214, 298
Properties and uses..... 299
Micro projector 248
Microscope A181
Polarizing 248
MILHAM, E. G., and BALCH, S. Heat requirements for drying coated paper.... 95
MILLER, J. D. Materials of construction developments 267
—— Materials of construction committee report 49
—— Materials of construction service records 246
Millon's reagent for unbleached sulphite pulp 26
Mills
Air conditioning in.....A203, A204
Heating A203
Modernization A163
O/Y Waldhof A/B..... A139
Paints for A204

Power applications A204
Preserved wood for..... 225
Thermal insulation A204
MINER, JESSIE E. Elastic properties subcommittee report 336
Moisture
Pulp, determination in..... A128
Wood, determination in..... A128
Moisture regain in paper..... 286
Monosulphite process P332
Multiple utilization of liquor in..... A165
MONSSON, W. H., and CHIDESTER, G. H. Russian and Canadian spruce in sulphite process 56
Montan wax in sizing..... A150
MONTGOMERY, A. E. Report of subcommittee on heat utilization in pulp drying and in making paper and paper board 291
MORDEN, C. W. Continuous batch beating 62
Morden "Stock-maker" A230
MORRISON, H. A. Deinking of book and magazine stock 239
Motors
Insulation 135
Power factors 235
Synchronous 131
Musa fiber, papermaking material..... P124
MYERS, H. R. *See* Taylor, H. C.

N

Nash vacuum pump..... 80
Nephelometer 248
News ink 174
Newspaper
Ink absorption 177
Physical tests 176
Printing qualities 176
Sulphate pulp in..... A191
Effect of 177
News print mills
Power applications A204
Nickel-chromium steels A255
Nickel-resist (alloy) 37
Nitric acid, reagent..... 113
Nomographic charts 13, A255
Non-fibrous materials testing committee.... 259

O

Oak wastes, papermaking material..... A217
Oat straw, papermaking material..... 340
Pulping with ammonia..... P123
O'CONNOR, J. H. Paper coating developments 330
Oils, insulating 134
Opacity A191
Optical instruments 247
Oven, pulp drying..... A128
Oxalic acid, standardization..... 273

P

Paints A163, A204
Paper
Absorbent P283
Accelerated aging test..... 34
Volume of air, effect of..... 33
Acid-proof P258
Acidity, determination of..... 120
Adhesive P281
Aging test 33, 177, 301
Alkaline filler P334
Alpha-cellulose, determination of..... 119
Analysis, Halse method..... A190
Artificial flowers, use for..... P282
Asphalt A255, A309
Bacteria, action of..... A164
Braille 161
Bursting strength A151
Composition and A190
Cable A192
Carbon P153, P162, P281
Carbonate filler and sizing..... P127
Casein paint for..... P309
Cellulose acetate in..... P282
Cigarette A193
Coating
Continuous P192
Gravitational factors 29
Review 330
Coating composition P281
Coating machines P192, P276
Coating strength factors..... A231
Color, changes in..... A192
Coloring, one-sided P258
Condenser P163
Conditioning 17
Conduit P258
Copper number, determination of..... 189
Creping P283
Decalcomania P259
Decay, causes of..... 300
Deinking P110, A138, P217, 239, P310
Dielectric properties..... A193
Diseases A164
Discovery, history of..... A163
Double coated..... 28
Drying ..A55, P55, A181, A231, P231, P232
Superheated steam..... A181
Yankee drier..... 53
Dyeing P309
One sided..... P100
Dyeing apparatus..... P258
Electrical uses..... A192
Electrolytic writing..... P153
Fiber analysis, weight factors..... 244
Fiber length, effect of..... 114
Finish, testing of..... A257
Greaseproof A193, P258
Hand made..... P309
Hand watermarked..... A153
Heat insulating..... P192
Heat test, effect of volume of air..... 33
Hygrometric control..... 16
Impregnated, insulating value..... 134
Impregnating P309
Insulation material..... 133
Iodine containing..... P153
Japanese rice..... A192
Latex P193, P258
Machine, testing on..... P257
Mechanical pulp, determination of..... A190
Metal-covered P162
Metal foil..... P153
M. G., drying..... 53
Moisture, automatic control..... P252
Moisture content
Humidity and..... 284
Regulator A151
Temperature, effect of..... 284
Moisture regain..... 286
Moisture regulator..... P232
Moisture proof..... P258
Multi-ply P281
Off-shade losses..... A150
One-sided finished.....A191, P258
Opacity A191
Oriental, permanency of..... 329
Ornamentally colored..... P258
Parchmentization A193
Permanence studies.....A191, 300
Permanent, specifications..... 300
Pore fraction..... 313
Porosity
Determination of..... 312
Fiber length, effect of..... 118
Porosity test A191
Preheating roll P274
Radio-frequency oscillating currents, testing with P257
Refrigerator insulation A193
Reinforced P193
Relative humidity, effect of..... 19
Relief design..... P258
Rosin, determination of.....25, A257
Rosin-sized, effect of light..... A180
Rubber-metal covered..... P258
Rubberized P281, P283
Safety P163
Sampling 53
Shrinkage and fiber length..... 117
Size resistance, total..... 46
Slitter P275
Soap-packing A192
Sorting with photoelectric cell..... 102
Spun P281
Stability
Fresh air, effect of..... A257
Heat test 33
Iron, effect of..... 149
Unbleached sulphate fiber, effect of 66
Steel rolls, action of..... A203
Stiffness, measure of..... P280
Stiffness tester..... A191
Strength, fiber length and..... 117
Strike through 174
Tearing test 242
Tension, automatic control..... 92
Thickness
Control of P253
Magnetic gauge for..... 75
Measuring P253
Transparent P153
Uses A255
Waste, deinking A138, P310
Water insoluble gel in..... P193
Water of imbibition, effect of..... A3
Water resistance 46, A257
Waterproof P258, P282, P309
Waterproofing P162, P163, P193
Weight, automatic control..... P252
Whiteness, control of..... A191
Window P153
Wire-side coating 28
Paper boards, size testing..... 260
Paper break indicator..... 99
Paper cutter, register control..... 132
Paper industry, heavy chemicals in..... A205
Paper lamp shade..... P283
Paper machine
Break, prevention of..... P202
Multiple motor drive..... P203
Power data 69
Reconstruction A203
Superheated steam for..... A202
Paper machinery, developments in..... 213
Paper mills
Paints in A163
Power and heat costs..... A204
See also Mills.
Paper sheets, laying on machine..... P254
Paper spot cutter, photoelectric cell as.... 98
Paper stock
Coagulation P230
Consistency regulator P252
Pumping 85
Paper testing, hygrometry in.....16, A257
Paper testing committee report..... 121
Paper towels P193
Papermaking materials
Abietic wood A217
Alder wood A217
Asclepias Syrica A138
Aspen wood A217
Bagasse P124, A138, 341
Bamboo A138
Birch wood A217
Brazil A164
Broussonetia papyrifera P311
Caha brava P139
Carrizo P139
Corn leaves A217
Corn stalks A217, A218, A339
Cotton waste P219
Eucalyptus A110
Fatsia papyrifera A192
Golden rod stalks 325
Gramineae P321
Grasses P125
Hemp 341
Hook pine A164
Hydrophytes A164
Jute 341
Kayu selemeh A310
Musa fiber P124
Oak wastes A217
Pinus uncinata A164
Pisces excelsa A332
Rag fibers 244
Reeds P139
Resinous wood P311
Saw grass 341
Spinning mill waste..... P164
Straw A123, P124, 339
Sugar beet waste..... A164
Sugar cane sprouts..... P311
Waste paper 342
Paraffin emulsions for sizing P127, P128
Parchment paper
Acid, removal of..... P258
Permeability A309
Sulphate pulp in..... A191
Patent law (book review)..... 111
Patents
Alkali recovery 187
Ownership of 196
Rights in 194
United States 107, A164, A255
PATTISON, R. W. *See* Yoerg, R. W.
Pebble mill test A128
Penescope tester 260
PETERSON, F. C., and MAKARA, F. Pulp consistency variables in pebble mill test 182
Phenolphthalein indicator 271
Phosphoric acid, reagent..... 113
Photoelectric tubes 98
Theory and characteristics..... 99
Photographic paper..... P162
Photomicrographic equipment..... 248
Pigments, developments in 1931..... 222
Pine, sulphate pulp for..... A179
Pine wood, kraft pulp from..... A218
Pinus *uncinata*, paper making material..... A164
PIPER, W. E. Operation of continuous cautic recovery plants..... 88
Pipes A205
Copper A205
Pipettes, calibration..... 270
Pisces excelsa, papermaking material..... A332
Pitch, determination in pulp..... A181
Pneumatic conveyors.....A163, A204
Pocket grinder A123
POLAKOV, WALTER N. Industrial management problems in Russia..... 264
—— Integrated industrial power..... 206
Polariscope 248
Populus maximowiczii, analysis.....A110, A309
Porcelain, insulation value..... 134
Porcelain balls in pebble mill test..... A128
Porosity
Paper, to air..... A191
Fiber length and..... 118
Units of 313
Porosity tester 312
L'homme and Argy..... A191
Potassium chromate, indicator..... 271
Potassium dichromate
Reagent 113
Standardization 273
Potassium ferricyanide, reagent..... 113
Potassium ferrocyanide, reagent..... 113
Potassium hydroxide, standardization..... 273
Potassium permanganate, standardization.. 273
Potassium sulfocyanate, reagent..... 113
Potentiometer pyrometer, "Micromax"..... 82
Potato, fibers from..... P110
Power
Industrial 206
Water A163
Power costs, allocation..... 211
Power dispatchers 208
Power factor 234
Computation 237
Lagging 234
Power house, economies in..... A204
Power plants, stock taking in..... A204
Press rolls 251
Coverings proposed 214
Groved P203
Mounting P275
Rubber covered 213
Press roll driver, equalizing..... 69
Printer, paper problems..... A205
Printing paper, ink resistance..... 174
Psychrometer
Aspiration 21
Conversion data 22
Electric A191
Wet- and dry-bulb..... 21

Psychrometric chart 23
Pulp
Acid, removal of, ... P258
Agitator 77
Ash content, source of A179
Bleachability, determination of A190
Bleaching P43, A164, P164, P333
Hypochlorite-permanganate P43
Bleaching test A140
Bursting strength, consistency and 183
Chlorine consumption and copper number A190
Classification by screening A256
Consistency, determination of A129
Pebble mill test and 182
Consistency regulator A202
Cooking degree, determination of A190, A332
Copper number A190, A191
Digestion, degree of, determination of. A129
Disintegrating P4
Disintegrating drum P233
Disintegrator 156, A256
Drying P275
Elmendorf test, consistency and 182
Flobility 170
Freeness
Agitation, effect of 77
Consistency and 183
Freeness tester A190
Freeness testing 306
Hardwood, bleaching P164
High alpha-cellulose P179
Hydration A140
Hydrolysis number A181
Lignin content A191
Determination of A180, A181, A190
Low viscosity P125
Moisture, determination of ..A128, A151, P280
Errors in A151
Pebble mill test, consistency variables 182
Phenol, treatment with P321
Pitch, determination of A181
Puffed P311
Purification P125, P320, P333
For esterification P165
Quality
Determining P232
Improving P2
Recooking, effect of A179
Refining methods A218
Resin in P258
Roe number A191
Rosin, testing for A129
Rosin-fat determination A191
Sampling 54
Screen test A256, A257
Sieber number A191
Slowness tester A190
Sodium carbonate, purification with P320
Specification needs A181
Springback 172
Stamping machine P4
Strength determination A191
Swedish methods A190
Sulphite, unbleached, determination ... A257
Tingle chlorine factor A191
Turbidity value A191
Viscose, use for A164
Viscosity 322
Determination 245
Washing P124
Water solubility, determination of 212
Water sorption by A140
Wet strength, determination of 160
Whiteness, determination of A191
Pulp containers, molding of P308
Pulp conveyor P233
Pulp fibers
Length, effect of sulphite process on .. A179
Weight, effect of sulphite process on .. A179
Pulp mills, instruments for 80
Pulp mixer P252
Pulp press, Colin A231
Pulp screen
Centrifugal P202
Roller-bearing 67
Rotary P233
Pulp screw P233
Pulp sheets
Drainage time 159
Forming 154
Machine for 157
Press 157
Testing 154
Pulp stones
Aloxite A216
Artificial A123, A216, 305
Temperature measurement A123
Pulp storage tank P252
Pulp strips, machine for P308
Pulp testing
Bibliography for 1931 323
British standard method A129, A190
Developments in 1931 322
History A129, A151
Pulp testing committee report 289
Pulp wheel, Aloxite 304
Pulp wood, power rake 75, A255
Pumps
Buffalo 86
Installation factors 86
Non-clogging impeller 87
Paper stock 85, A193, A233
Split shell paper stock 86
Water performance 86
Wood pulp 85
Pyrites
Developments in 1931 223
Flotation, use of A178
Roasting P125, A178, A219
Pyrometer
Drier rolls, use on A203
Potentiometer 82

R

RAFTON, HAROLD R. Paper coating strength factors 28
Rags
Cleaning P310
Extraction with organic solvents P310
Papermaking material 244
Treatment of A138
Viscosity in evaluation of A151
Rake, pulpwood 75
RAPPOLT, H. G. Handling and drying single coated paper 50
Rayon, cellulose for P178, A255
Record paper, permanent, tests of 288
Red pine, sulphite pulp from P126
Redwood bark, sheathing board from P282
REED, E. O. TAPPI testing division 141
Reeds, papermaking material P139
Refiner P3
Reflex drying system, coated papers 51
Refractometers 248
REGNIER, A. E. casein 221
Research problems A255
Resinous wood
Digesting P332
Sulphite pulp A2
Resins
Artificial as coating material P192
Insulating value 134
Rewinder P254, P275
Rice paper A192
Rice straw
Analysis A310
Papermaking material 340
RICHTER, HERMAN W. Shrinkage reduced by chlorination 35
Riffler P230
Rinman process A125
RIVISE, C. W. Patents committee annual report 335
—— Patents committee's development report 338
—— Rights of employers and employees in inventions 194
Roe number A191
ROGERS, R H. Power factor and means for its improvement 234
Roll-ejecting mechanism P275
Rolls
Chromium plated A163
Driers, pyrometer for A203
Micarta 299
Preheating P274
Rubber, hardness tester A203
Rubber coating 267
Rubber covered P274
Steel, action of, on paper A203
Roofing P276
Colored P258
Drying A151, PZ31, P308
Manufacture P308
Rosin
Artificial, from lignin A123
Bewoid process A180
Developments in 1931 223
Light sensitivity A180
Paper, determination in 25, A257
Pulp, determination in A129, A191
Sizing agent A180
Solution of, for sizing A150
Sulphate pulp, removal from P179
Rosin acids as emulsifiers P219
Rosin precipitates, composition of A180
Rosin size
Colloids in manufacture A180
Developments in 1931 223
Rosin sizing
Bewoid process A150, 318
Solvent process A150, 319
ROWLAND, BEN W., and LEWIS, H. F. Optical instruments in paper industry 247
Rubber
Coating material, use as 330
Hardness, determination of A163
Insulating value 135
Rubber rolls, hardness tester A203
Russia, industrial management in 264
Rust, prevention of A204

S

Saccharimeter 248
Safety paper P163, P282, P309
Salix rorida, analysis A110, A309
Salt cake, developments in 1931 224
Sand paper P283
Save all P252
Cone-shaped A203, P203, P252
Cylindrical P233
Saw grass, papermaking material 341
SCHMIDT, J. C. Dyes and pigments 222
Schopper-Riegler beating tester, nomograph 33
SCHWALBE, H. C. *See* Taylor, H. C.
Screen P254
Screen plate
Cleaning P254
Fastening P202
Screen roll, rotating P4
Screen test
Pulp A256, A257
Standardization A257
Screw conveyor P233
Screw press P254
SCRIBNER, B. W. Report of paper testing committee 121
Seaweeds, use in boards A164
SEBORG, C. O. *See* Doughty, R. H.
Service records for equipment 246
Shake 67
Balanced A203
Developments in 213
Head 67
Roll P152
Sheathing board P282
Sheathing lumber P281
Sheet formation
Control of 295
Flobility, effect of 172
Sheet machine A256
Sheet making A181
Sheet properties, effect of fiber length 114
Shingle P276
Composition P192
Fiber and cement P192
Shoe stiffener P193, P282
SHOTWELL, J. S. G. *See McKee, R. H.*
"Show-through" 175
Siccometer A151
Sieber number A191
Sieve, dewatering, rotary P274
Silica, removal from black liquor P125, P139
Silver nitrate, reagent 113
Standardization 274
Simplex motor 131
Size
Alum and, order of addition 319
Dry 319
Preparation 317
Sized Paper, analysis A150
Sizing P333
Beater A43
Bewoid process A150, A180, 318
Hydrogen ion control A180
Khinchin process A231, 319
Montan wax in A150
Paraffin emulsion in P127, P128
Rosin P43
Rosin solution for A150, 319
Sodium silicate in A181
Solvent A150, A180, 319
Stearin emulsion for P231
Surface A231
Sizing agents, tests for A43
Sixing tests A150
Ink test A150
Lactic acid concentration, effect of .. 262
Porosity test A150
Temperature, effect of 261
Valley size test A150
Water penetration test A150
Slabs, barking machine P233
Slash pine, properties A164
Slate, insulation value 134
Slice, self-adjusting P253
Slime control, chlorine in 35, A205
Slime remover, Magnus A205
Slitter P152, P275, P276
Developments in 214
Sliver screen P202
Slowness tester, Green A190
Smoke indicator, photoelectric tube as 100
Smoke indicator and recorder 101
Soapstone, insulation value 134
Soda ash, analysis 343
Soda oven P218
Sodium aluminate, developments in 1931 ... 224
Sodium borate, use in alkaline process P210
Sodium carbonate
Analysis 343
Reagent 113
Sodium chloride
Electrolysis of A216
Wood grinding in solution of P123
Sodium chromate, indicator 271
Sodium hydroxide
Cellulose, compounds with A111
Reagent 113
Standardization 273
Sodium perborate, use in pulp production .P179
Sodium phenoxide, digestion of wood with P311
Sodium phosphate, reagent 113
Sodium silicate, sizing agent A181
Sodium thiosulphate, standardization 273
Solvent sizing A150, A180, 319
SPANGLER, S. F. Sulphur dioxide gas producing equipment 294
Spectrophotometer 248
Speed reducer, herringbone A203
Spinning mill waste, papermaking material P164
Springback of pulps 172
Refining, effect of 173
Spruce
Ammonia, digesting with P139
Canadian, pulping 56, A219
Russian, pulping 56, A219
Spruce pulp
Screen analysis 116
Strength data 114
Tests 58
Spruce wood
Analysis 56
Kraft pulp from A218
Penetration by sulphite liquor A219
Qualities A164

STAEGE, SAMUEL A. Micarta in paper industry 298
STAMM, F. C. Evaluation of paperboard drier Performance 227
Stamping machine P4
Standardization 326
Standards, value of 326
Starch
  Developments in 1931 224
  Indiactor, use as 271
Steam
  Automatic control P275
  Economies of A163
  Moisture content A204
  Waste, utilization of A205
Steam engines A205
Steam flow meter 206
Stearin, saponified, as filler P127
Stencil sheet P192, P281, P282
Stiffness, measuring P280
Stiffness, number P280
Stiffness tester A191
Stock, temperature control A152
Stock flow, regulation P253
Stock inlet P254
"Stock-maker" 62, 67, A140
Stock pump A193, A233
Stoker A204
Straw
  Alcohol-chloride treatment P3
  Alkali-chlorine process P124
  Digesting P125, P333
    Continuous P311
  Lime, digestion with P124
  Nitric acid process P3
  Papermaking material 339
Straw pulp A123
  Bleaching A123
Stuff preparation, developments in 1931 ... 283
Suction box P153, P253
  Cover 70, P202
  Oscillator 70
Suction device, travelling P252
Suction mat P252
Suction roll A151, P202, P253
  Gearless P253
  Rubber covered 69, 213, A232
Sugar beet waste, papermaking material.. A164
Sugar cane, board from A164
Sugar cane sprouts, papermaking material P311
Sugar cane straw, boards from A110
Sulphate cooking liquor, effect on alloys .. 60
Sulphate digester gases
  Deodorizing P320
  Oxidation of P320
Sulphate process, equipment record 247
Sulphate pulp
  Ungerer's process A175
  Uses A191
Sulphite alcohol, Swedish statistics A2
Sulphite cooking liquor P178
  Analysis A178
  Circulation P178
  High sulphur dioxide P126
  Production P321
  Reconditioning P219
  Relief liquor in A178
  Waste liquor, use of P126, A178
  Wood fibers, absorption by A179
Sulphite industry
  Alloy steel in 31
  Heat saving in 32
Sulphite mill
  Canadian International Paper Co. .. A256
  O/Y Waldhof A/B A255
  Weyerhauser Timber Co. A256
Sulphite process P126, P127, P321
  Catalysts for P321
  Equipment record 247
  Fiber length and A179
  Fiber weight and A179
  Forced circulation in 67
  High sulphur dioxide concentration, effect of 44, A219
  Hiller method A332
  Intermittent steaming P126
  Pressure control in 293
  Progress in A178
  Spruce in 56
  Temperature control in 293
Sulphite pulp
  Alkaline purification P2
  Bleaching A180
  Chlorinated sulfonic acid, treatment with P3
  Douglas fir P126
  Dyes, dispersion of, with P2
  Purification P165
  Red pine P126
  Rosin, removal of P179
  Determination of unbleached 26
  Stability of paper, effect on 66
Sulphite waste liquor
  Black liquor soap, treatment of, with P321
  Dust prevention with A2
  Dyes, dispersion of, with P2
  Evaporation A139, A179, P332
  Fish, effect on A321
  Fluorescence of A179
  Fungi, action of A179
  Oxygen, dissolved, determination of .. A219
  Recovery P321
  Sodium compounds from P219
  Wood, digestion of, with P2
  Yeast, cultivation of, in A332
Sulphonic acids, chlorinated, for wood digestion P3
Sulphur
  Burning A178, 198
  Coal, determination in 9
  Spray burner 294
Sulphur burner P127, 166, 198, 294
  Heat balance 199
Sulphur dioxide
  Analysis A178
  Cast iron, action on 37
  Gas producing equipment 294
  High concentration, effect of 44
  Liquid, for drying cellulose P181
  Low-combined, effect of 45
  Pyrites, preparation from P125
  Water, solution in P321
Sulphuric acid
  Analysis A205
  Reagent 113
Super-calender drive 90, 130, A203, A254
Super-calender roll, rubber covered P254
Super-calender winder, synchronized 93
Surface tester A257
SUTERMEISTER, E. Determination of unbleached sulphite 26
SUTERMEISTER, E., and TORREY, W. V. Determination of rosin in paper.. 25
Switchgear, insulation of 136
Synchronous motors, power factor 235

T

Table rolls, elimination P252
TAYLOR, K. A. Preparation of non-fibrous materials committee report 263
TAYLOR, K. A., SCWALBE, H. C., and MYERS, H. R. Developments in the preparation of non-fibrous materials .. 317
Tearing tester
  Elmendorf A191
  Marx-Elmendorf, calibration 1
  Thwing-Elmendorf, calibration 1
TEAZE, M. H. Heat and power committee report 290
Tensile tester A257
Test sheets, preparation A181, 322
Testing Division 141
Testing methods, standard, forms for 141
Thermionic vacuum tube 100
Thermometer, anti-ambi 81
Thermoplastic sheets P334
Thickener P230
Thickness, magnetic gauge for 75
Thochodendron araliodes, composition ... A164
Thwing-Elmendorf tearing tester, calibration 1
Toilet paper, winding P308
TORREY, W. V. *See* Sutermeister, E.
Tractors A163
Transfer sheet P281
Transparent foil, pliable P191
Transparent paper P283, P334
Transparite process A258
TRAQUAIR, JOHN. Fibrous raw materials developments 339
TRAUTSCHOLD, REGINALD. Report of sub-committee on power requirements 291
Triacel, permeability A309
Trucks A163
Tub papers A192
Turbine
  Mercury vapor-steam A204
  Steam 130
TURNER, E. J. Rosin 223
Turpentine, recovery from wood P311

U

Ungerer process A165
Uni-flo vat 297
Universal machine P233

V

Vacuum pumps 79
  Nash 80
Valley sheet machine A256
Valley size test A150
VANICK, J. S., and LaQUE, F. L. Alloy cast iron for use in paper industry 37
Vat
  Float control 297
  Miami uni-flo 297
Vat paper A192
Vegetable proteins as coating material P282
VICARIO, CARLO. Latest developments in vacuum pumps 79
Viscose, wood pulp for A164
Viscosity
  Cuprammonium, determination of 245
  Rags, evaluation of, by A151
Viscosity tube 245
Volumetric solution, standardization 272
Vomit stacks, carbon in 106
Vulcalock process 267
Vulcanized fiber A257, P309

W

WAGNER, C. L. Alkali recovery patent review 187
Wallboard P193, P281
Wall paper, fungicides in P281
WARWICK, C. L. Standardization activities 326
Washing P124
Waste paper
  Deinking P110, P217
  Disintegrating drum P233
  Pulping P4
Wastes, utilization of A255
Water
  Bacterial count, effect of chlorination 36
  Chlorination 35, A205
  Filtration A255
  Iron, action on 38
  Mill uses A129
  Purification A255, 317
  Sheet formation, role in 295
  Viscosity 160
Watermarks A153, A205, P257
Water resistance, dry indicator method .. 46
Wax paper, embossed P193
Wax sizes, developments in 1931 224
WEHMER, P. F. Effect of volume of fresh air in heat test for stability of paper 33
WEHMHOFF, B. L. Ink resistance of printing papers 174
——Permanence of paper 300
Weight factors in fiber analysis 244
Weights, calibration of 270
Welding code A204
WERTHEIMER, R. S. Drying paper on Yankee driers 53
WEST, CLARENCE J. Abstracts and bibliography committee 185
——United States patents, fourth quarter, 1931 107
——United States patents, first quarter, 1932 277
White water
  Clarifying tank P152
  Iron, action on 38
  Piping system A256
  Removal by extractor 72
Wijs solution, reagent 113
WILLETS, W. R. Determination of alpha-cellulose 97
Williams sheet machine A256
Williams sizing process 318
Winder P152, P276
  Automatic unloading type 69
  Developments in 214
  Drives 90, A254, P275
Wire P152, 249, P252
  Endless P152
    Winding P152
  Guiding device P252
  Hydraulic back pressure P252
  Hydrogen ion concentration, effect of 250
  Machine, putting on P202
  Manufacture P203
  Pulp, distribution of, on P274
  Regulator P254
  Seamless P254
  Souring solution for 249
  Standard 249
  Wear factors A232
Wire life, factors in 250
Wood
Alcohol, dilute, for digestion P3, A180
  Ammonia, digestion with A3
  Chloric acid, digestion with P3
  Chlorine process P124
  Cyclic circulation in digestion P274
  Digesting at regulated hydrogen ion concentration A140
  Electrolytes, penetration of A217
  Liquids, penetration of A217
  Moisture, determination of..... A128
  Nitric acid process P3
  Organic compounds, digesting with P140
  Permeability A217
  Preservation 226
  Pretreatment P126, P311
  Resinous
    Digestion P311, P333
    Pretreatment P126
    Sulphite pulp from A2, P126
  Stepwise digestion P126
  Volume weight A164
  Waste sulphite liquor in digestion of P2
  Water, preliminary digestion with P320
  Water solubility, determination of 212
Wood chips, pneumatic handling A204
Wood conveying equipment A255
Wood decay, causes 225
Wood pulp, pumping 85
WORTHINGTON, F. V. *See* Carson, F. T.
WRISTON, HENRY R. Training technical men at the Institute 314

Y

Yankee driers 53, A231
Yankee machine P275
Yeast, cultivation in waster sulphite liquor A332
YOERG, L. M. Paper manufacture development report 186
——Paper manufacture progress report... 84
——, and PATTISON, R. W. Wires, felts and press rolls 249
Yoshina paper for stencils P281

Z

Zinc sulphate as filler P127

SECTION OF THE
COST ASSOCIATION OF THE PAPER INDUSTRY
Affiliated with
THE AMERICAN PAPER AND PULP ASSOCIATION
Edited by Thos. J. Burke C.A. Sec.-Treas.

Are Industrial Wages Deflated In Proportion To General Drop In Values?*

In the belief that a study of wage liquidation would be both interesting and valuable, the following inquiry was sent on October 10, 1931, through the Department of Research of the N. A. C. A., to members of the Association who were considered to be in a position to supply the information suggested:

The Obvious Implication

"One of the statements frequently heard in these perplexing times is that wages must be liquidated in conformity with the general drop in values. The obvious implication is that wages have not so far been liquidated to the extent necessary. What is the situation in this respect? Is further liquidation imperative, or have we in fact already reduced wages more than is generally believed?

Timely Information Sought

"An inquiry is being conducted through the Department of Research to obtain from the members of the Association some timely information on this question. We have in our membership a fair cross section of American industry. Hence, with the cooperation of each member, we should be able to collect and publish, for the benefit of all, data pertinent to this important question.

Data Requested

You are asked to send in to the Department of Research the following data:

1—WAGE LEVEL: What is the percentage of average hourly earnings of employees in September, 1931 to the earnings in September, 1929?

2—NUMBER OF EMPLOYEES: Give number of employees at end of last pay week in September, 1931, and corresponding number in September, 1929.

3—AVERAGE EMPLOYMENT: What was the average number of hours per week worked per employee in the last week in September, 1929? Last week in September, 1931?

"No confidential information is requested; for example, wage rates are not asked to be disclosed. Moreover it is not necessary to indicate the name of the company furnishing the information. The Department relies upon the members for the substantial correctness of the figures."

It was further requested that the information be classified as follows:

Industry

CLASSIFICATION: Sub-divide employees into groups according to trade or occupation, in what you consider the most logical breakdown. The object is to obtain significant group totals by classes. Show as many classes as you think desirable. Avoid, if possible, putting dissimilar occupations in a group.

WAGE LEVEL: Specify percentage of average hourly earnings, *i.e.*, pay rate, in effect last week in September, 1931, to corresponding earnings in 1929.

NUMBER OF EMPLOYEES: Employees at end of last pay week in September, 1929, and September, 1931.

AVERAGE EMPLOYEES: Total employee hours worked, divided by number of employees for the last week in September, 1929, and September, 1931.

The response was especially gratifying. Some three hundred replies were received, and they were so carefully made that it was possible in the final compilation to use 246 of them, covering 156,915 employees in September, 1929, and 101,161 in September, 1931.

It was not possible, however, to use the data given under the classification heading as defined above, as there was too great a lack of uniformity in classifying into groups.

Schedule I shows a tabulation of the information received by major industry groups. The column headings are largely self-explanatory. The figures in columns 2 and 3 were taken directly from the reports. The figures in the other columns were obtained by calculation after giving weight to the number of employees involved. In no respect are any of the figures shown "averages of averages." From this schedule the following are the facts for all of the reporting companies as a whole:

1—Wage rates were reduced 5.6 per cent (col. 4).

2—Working hours per week fell off 20.9 per cent (col. 5).

3—Rate of income of those employed in 1931 fell off 25.3 per cent (col. 6).

4—Number of people employed decreased 29.8 per cent (col. 7).

5—Total of wages paid by the reporting companies decreased 47.5 per cent (col. 8).

The facts of each group may be read similarly.

Schedule I-a shows a sub-division of groups 11, 13 and 14 on Schedule I in sub-groups where a sufficient number of concerns or of employees appeared in the sub-groups to give representative figures.

Schedule II repeats the information given in Schedule I by major geographical districts.

COST SECTION

* Results of a survey made under the direction of Eric A. A. Camman, National Director of Research of the National Association of Cost Accountants.

Schedule III summarizes the information by States and major geographical districts.

Schedule IV shows employment and group income by wage level groups.

If wages and costs of living are always in the same proportion it does not make any difference to wage earners, as far as current living conditions are concerned, what their wage level is. Of course, this does not apply to those whose income depends on fixed interest bearing sources such as bonds, mortgages, annuities, etc. However, when major changes in wage levels and cost of living do occur, there never is any uniformity with the result that more groups are injured than benefited, and consequently, dissatisfaction and unrest develop.

There has been a general feeling that wages have not been decreased in proportion to the cost of living and other factors. Technically, this is correct, and is borne out by the following statistics taken from data in the "Survey of Current Business" published by the Department of Commerce.

	Decrease in per cent in Sept. 1931 from Sept. 1929
Wage Rate N.A.C.A. Survey	5.6
Industrial Production	37.8
Wholesale Prices—550 Commodities	29.1
Wholesale Prices—Farm Products	43.1
Wholesale Prices—Foods	29.3
Wholesale Prices—except Farm and Food	22.5
Wholesale Prices—Raw Materials	36.7
Dun's Wholesale Price Index	29.0
Bradstreet's Wholesale Price Index	34.7

	Decrease in per cent in Sept. 1931 from Sept. 1929 Group Payrolls
Cost of Living—All Groups	15.0
Food	25.7
Housing	12.5
Clothing	20.4
Fuel and Light	3.2
Sundries	3.0
Farm Prices—Weighted by quantities marketed	49.0

A comparison such as given above, with no other data, leads to an erroneous conclusion that wages have not been deflated in proportion to cost of living. Taking into consideration, however, the shorter working week, together with the reduction in wages, it is seen (column 6 in all tabulations) that those who are working in the plants included in this survey were receiving 25.3 per cent less weekly wage in September, 1931 than they were in September, 1929.

But, in order to get the full effect of decrease in income, it is necessary to take into consideration the fewer number of people receiving income from these plants, and column 8 of all tabulations shows the decrease in total wages paid by the 246 companies included in this survey. The figures in this column show that those dependent on these companies for their livelihood received 47.5 per cent less income in September, 1931 than they did in September, 1929.

If it is reasonable to assume that the decrease of 49 per cent in the weighted index of farm prices fairly measures the decrease in income of the average farmer, then it may be stated that industrial wages are not far out of line as compared with agricultural incomes.

This survey only covers 246 plants with 156,915 employees in September, 1929. Possibly only those plants which were better managed than the average replied to the inquiry, although this point may not have any bearing on whether the plants included reduced wages more or less than those who did not reply. Figures published by the Federal Reserve Board, which include companies with 6,600,000 employees in 1927, estimated to be 78 per cent of all industrial employees in the United States, show a payroll decrease of 46.7 per cent from September, 1929 to September, 1931, as compared with the N. A. C. A. figures of 47.5 per cent. Therefore, the N. A. C. A. figures may be accepted as reasonably accurate.

Of course, there is a wide divergence between lines. If the average income received by farmers and industrial workers as a class may be considered to be between 45 and 50 per cent less than in September, 1929, then the following lines may be considered as not yet proportionately deflated.

	Per cent decrease in Group income
Food	15.0
Printing	22.6
Paper	25.9
Leather Products	33.4
Stone, Clay, Glass	7.7
Chemicals	27.0
Rubber Products	38.4

and the following had to bear too heavy a burden

Machinery	62.9
Forest Products	57.8
Transportation	54.6
Non-Ferrous Metals	54.8

Of the above list, all figures check very closely with the Federal Reserve Board figures, except the Cement, Stone, Clay, Glass Group, which they show to have a decrease of 49.5 per cent. Therefore, it is fair to infer that the eight companies reporting in the N. A. C. A. inquiry have taken the suggestions offered by the members of the N. A. C. A. in their employ and applied them so intelligently that they have been able to maintain wage payments 90 per cent more effectively than the others in the group who did not have such an advantage.

Schedule I-a, which gives some supporting figures for certain groups, shows some wide divergences. The Forging group represented has done very well, while the Agricultural Implement, Foundry, and Machine Tool groups have suffered. In making sub-divisions of what is at best a small number in a group, there is always danger of a distortion because of abnormal situations; therefore, these figures should be used with care.

For those interested in a geographical distribution of the groups given in Schedule I, Schedule II, is presented. Here again, care must be exercised in reading the figures, as the number of companies in each sub-group is necessarily quite small and external factors may cause distortion in some items.

For ease in making comparisons of Group Payrolls by geographical districts, Schedule II-a is offered for what it is worth. Without detailed information, which is not available, the variances cannot be explained.

There is quite a difference in various states as shown on Schedule III. New England has had the reputation of suffering less from the depression than other manufacturing districts, and this is borne out by the figures, although not to the extent which one might believe. If the figures which are available are indicative of average conditions, Hawaii, Kentucky, California and Indiana have the most favorable conditions for their wage earners in the order named.

One of the theories which has been advanced is that if wages were reduced, costs would go down, goods would be sold, production would increase, and the wage earner would get more than enough work to compensate for his loss of income. Schedule IV gives some data on this subject and discloses some interesting relationships. Columns 2 and 3 show that the median wage cut is in the 90 per cent-94 per cent level. In that group the working hours in September 1931, as compared with September, 1929 were 79.8 per cent and the number employed 66.1 per cent. Every group which received a larger rate of cut worked a smaller percentage of hours and every group but one which had a smaller rate of cut worked a greater percentage of hours, and the single exception was but a little smaller. The differences in working time of those whose rate was cut 10 per cent or less and those whose rate was cut more than 10 per cent is very marked. There-

tore, the income level of those who had greater rate decreases suffered much more than in proportion to the decrease.

Also, those companies who decreased wages the most, had to lay off the most men, so that instead of wage cuts stimulating business, the contrary condition seems to have obtained and the group payroll figures are most startling in their import. Where wages were cut to 75 per cent or less, payrolls were only 29.2 per cent. Where wages were increased to between 105 per cent and 109 per cent, payrolls were 68.8 per cent. It would be an interesting and valuable contribution to economics if more data along this line could be developed over a period of time. It is doubtful if the data presented here on this point are conclusive, as they are not as complete as would be desired, and an insufficient period of time is covered to indicate conclusively the relationship between cause and effect. It certainly is true that at the present time the low group payrolls shown are the result of poor business and that there may not have been a sufficient time or the proper accompanying conditions for low payrolls to result in low costs which would stimulate sales.

A comparison between the income of industrial wage earners as a group and farm income has been made. A few others are available for the same period.

	Number of Employers Per Cent	Group Payrolls Per Cent
N.A.C.A. Survey Factory Employment	70.2	52.5
Federal Reserve Board Factory Employment	70.8	55.3
Bituminous Mining	82.6	54.4
Anthracite Mining	78.6	62.7
Power, Light and Water	89.8	88.6
Telephone and Telegraph	82.9	91.9
Retail Trade	88.8	84.2
Federal Employees in Washington	119.9	..

It appears, therefore, that factory workers have already had a decrease in employment and a reduction in group income comparable with agriculturalists and greater than any other group listed above, with the possible exception of bituminous miners. Statistics on employment and payrolls of railroads are not available, but it is doubtful if they compare with those for factory workers.

In the month of November factory payrolls decreased about 5 per cent more. Mining payrolls increased, as would be expected due to seasonal trends, utility payrolls decreased about 1.5 per cent and retail employment increased nearly 2 per cent.

In this analysis emphasis has been placed on total payrolls rather than on rates, as they indicate the income available for groups of individuals and in times of depression the volume of money available to be put in circulation by groups as a whole is of more economic significance than individual rates.

SCHEDULE I—WAGES, INCOME AND EMPLOYMENT IN MAJOR INDUSTRIES IN 16 STATES AS REPORTED SEPT., 1931, COMPARED WITH SEPT., 1929

Industry Group	1— Number of Companies Reporting	2— Number of Employees 1929	3— Number of Employees 1931	4— Wage Level Per cent 1931 of 1929	5— Relative Working Hours Per cent 1931 of 1929	6— Income Level Per cent 1931 of 1929	7— Number Employed Per cent 1931 of 1929	8— Group Payrolls Per cent 1931 of 1929
1—Food & Kindred Products	14	4,286	4,060	100.8	91.8	92.5	94.7	85.0
2—Textile and Other Products	13	6,153	5,199	91.6	75.8	69.4	84.5	58.6
3—Forest products	12	4,002	2,558	91.1	72.4	66.0	63.9	42.2
4—Paper and paper products	16	2,934	2,446	95.9	92.8	89.0	83.4	74.1
5—Printing, publishing & allied industries	15	4,249	3,854	93.9	90.8	85.3	90.7	77.4
6—Chemical and allied products	10	9,890	7,817	100.0	92.4	92.4	79.0	73.0
7—Products of petroleum and coal	1	3,110	2,684	103.0	90.2	92.9	86.3	80.1
8—Rubber products	6	6,337	4,633	95.4	88.3	84.2	73.1	61.6
9—Leather and its manufactures	4	5,503	5,050	88.4	82.1	72.6	91.8	66.6
10—Stone, clay and glass products	8	3,196	3,170	95.4	97.5	93.0	99.2	92.3
11—Iron, steel and their products, not including machy.	42	37,784	26,796	92.9	74.1	68.8	70.9	48.8
12—Non-ferrous metals and their products	8	9,819	6,313	92.4	76.1	70.3	64.3	45.2
13—Machinery, not including transportation equipment	64	43,564	24,280	93.6	71.2	66.6	55.7	37.1
14—Transportation equipment, air, land and water	14	9,927	6,330	96.2	73.9	71.1	63.8	45.4
15—Miscellaneous	19	6,161	4,971	97.2	91.9	89.3	80.7	72.0
Totals	246	156,915	110,161	94.4	79.1	74.7	70.2	52.5

For further sub-division see Schedule Ia.

SCHEDULE Ia—WAGES, INCOME AND EMPLOYMENT, SUB-DIVISION OF CERTAIN INDUSTRIES LISTED ON SCHEDULE I, SEPT., 1931, COMPARED WITH SEPT., 1929

Industry Group	1— Number of Companies Reporting	2— Number of Employees 1929	3— Number of Employees 1931	4— Wage Level Per cent 1931 of 1929	5— Relative Working Hours Per cent 1931 of 1929	6— Income Level Per cent 1931 of 1929	7— Number Employed Per cent 1931 of 1929	8— Group Payrolls Per cent 1931 of 1929
11—Iron, Steel and their products, not including machy.:								
Cutlery and large tools, not including silver and plated cutlery	3	1,505	1,237	97.6	74.2	72.4	82.2	59.5
Hardware not elsewhere classified	5	4,764	3,679	95.6	73.4	70.2	77.2	54.1
Iron and steel	3	1,187	575	85.5	76.4	65.3	48.4	31.6
Forgings, iron and steel not made in steel or rolling mills	4	5,593	4,858	96.8	95.5	92.4	86.9	80.2
Iron and steel processed	5	4,824	3,338	88.5	56.4	49.9	69.2	34.5
Structural and ornamental iron and steel not made in rolling mills	7	12,947	8,453	90.5	75.5	68.3	65.3	45.7
13—Machinery, not including Transportation Equipment:								
Agricultural Implements	3	3,623	758	90.6	84.2	76.3	20.9	16.0
Electrical Machy., Apparatus and supplies	13	7,938	5,306	91.5	83.1	76.0	66.8	50.7
Foundry and Machine Shop supplies	15	5,160	2,629	86.0	56.1	48.2	50.9	24.5
Machinery	17	13,048	6,905	98.2	65.2	64.0	52.9	33.9
Machine Tools	7	2,641	968	83.6	71.7	59.9	36.7	22.0
14—Transportation Equipment:								
Locomotives	3	841	439	99.1	79.1	78.4	52.2	40.9
Motor Vehicles, Bodies, Parts	8	8,127	5,302	94.3	70.9	66.9	65.2	43.6

SCHEDULE II-A—GROUP PAYROLLS ARRANGED BY GEOGRAPHICAL DISTRICTS

	New England	Middle Atlantic	East North Central	East South Central	West North Central	Pacific	Total
1—Food	74.7	108.6	78.5	....	64.1	97.9	85.0
2—Textile	59.1	47.9	52.9	....	65.0	....	58.6
3—Forest Products	48.6	41.1	38.6	....	....	51.0	42.2
4—Paper	64.7	107.9	87.2	....	58.3	....	74.1
5—Printing, Publishing	57.8	78.5	110.8	86.6	75.6	97.5	77.4
6—Chemical	93.9	31.9	80.1	92.0	....	....	73.0
7—Petroleum Coal	....	80.2	....	....	....	....	80.1
8—Rubber	60.3	41.1	55.5	....	....	98.8	61.6

	New England	Middle Atlantic	East North Central	East South Central	West North Central	Pacific	Total
9—Leather	71.6	....	66.0	....	....	....	66.6
10—Stone, Clay, Glass	66.1	104.8	81.0	....	....	....	92.3
11—Iron and Steel	55.8	30.8	51.7	....	54.6	....	48.8
12—Non-Ferrous Metals	45.4	....	40.2	....	....	....	45.2
13—Machinery	43.2	43.8	35.1	....	31.1	....	37.1
14—Transportation Equip.	....	54.6	42.1	....	36.5	....	45.4
15—Miscellaneous	50.7	76.2	88.3	....	68.5	....	72.0
TOTAL	54.7	53.8	49.9	88.0	47.7	93.1	52.5

SCHEDULE III—WAGES, INCOME AND EMPLOYMENT IN CERTAIN STATES (16 STATES, SCHEDULE I), SEPT., 1931, COMPARED WITH SEPT., 1929

Industry Group	1— Number of Companies Reporting	2— Number of Employees 1929	3— Number of Employees 1931	4— Wage Level Per cent 1931 of 1929	5— Relative Working Hours Per cent 1931 of 1929	6— Income Level Per cent 1931 of 1929	7— Number Employed Per cent 1931 of 1929	8— Group Payrolls Per cent 1931 of 1929
1—New England:								
Massachusetts	26	9,175	6,860	94.0	85.8	80.7	74.8	60.5
Connecticut	26	23,060	16,474	92.8	78.0	72.4	71.4	51.6
Rhode Island	6	3,346	2,393	94.5	88.3	83.4	71.5	59.6
Total	58	35,581	25,727	93.3	81.0	75.6	72.3	54.7
2—Middle Atlantic:								
New York (not including New York City)	43	17,453	12,073	94.0	77.5	72.9	69.2	50.4
New Jersey	9	4,188	3,317	93.7	94.1	88.2	79.2	69.9
Pennsylvania	24	12,280	8,968	96.2	75.8	72.9	73.0	53.2
Total	76	33,921	24,358	94.8	79.1	75.0	71.8	53.8
3—East North Central:								
Wisconsin	14	11,854	8,307	92.2	68.8	63.4	70.1	45.5
Michigan	1	200	165	104.0	82.3	85.6	82.5	70.6
Illinois	28	15,270	11,101	93.8	79.2	74.3	72.3	53.8
Indiana	10	4,303	3,345	101.4	75.2	76.3	77.7	77.8
Ohio	34	39,965	26,617	94.8	77.5	73.5	66.6	49.0
Total	87	71,592	49,535	94.6	76.2	72.1	69.2	49.9
4—East South Central:								
Kentucky	3	841	767	101.6	95.0	96.5	91.2	88.0
5—West North Central:								
Minnesota	4	3,369	1,394	78.4	92.6	72.6	41.4	30.0
Missouri	12	9,479	6,031	97.6	86.7	84.6	63.3	53.6
Total	16	12,848	7,425	94.0	87.8	82.5	57.8	47.7
6—Pacific and Hawaii:								
California	3	851	949	92.5	84.4	78.1	111.5	87.0
Hawaii	3	1,281	1,400	99.8	92.2	92.0	109.3	100.7
Total	6	2,132	2,349	96.9	87.0	84.3	110.2	93.1
GRAND TOTAL	246	156,915	110,161	94.4	79.1	74.7	70.2	52.5

SCHEDULE IV—WAGES, INCOME AND EMPLOYMENT IN 16 STATES (a) ARRANGED IN GROUPS BY WAGE LEVEL, SEPT., 1931, COMPARED WITH SEPT., 1929

Wage Level Group Per cent Sept., 1931, of Sept., 1929	1— Number of Companies Reporting	2— Number of Employees 1929	3— Number of Employees 1931	4— Wage Level Per cent 1931 of 1929	5— Relative Working Hours Per cent 1931 of 1929	6— Income Level Per cent 1931 of 1929	7— Number Employed Per cent 1931 of 1929	8— Group Payrolls Per cent 1931 of 1929
0—Below 75	...	4,349	2,650	64.6	74.5	48.1	60.9	29.2
1— 75–79	...	4,911	3,147	76.3	65.8	50.2	64.1	32.1
2— 80–84	...	8,383	5,004	83.3	73.5	61.2	60.0	36.7
3— 85–89	...	21,558	14,983	88.1	74.4	65.5	69.5	45.5
4— 90–94	...	49,492	32,677	91.7	79.8	73.2	66.1	48.4
5— 95–99	...	16,191	12,141	95.9	81.6	78.3	75.0	58.7
6—100–104	...	41,748	32,013	101.2	81.8	82.8	76.7	63.6
7—105–109	...	4,844	3,584	107.2	86.8	93.0	74.0	68.8
8—110 and over	...	5,489	3,962	117.3	79.1	92.8	72.2	67.1
TOTAL	246	156,915	110,161	94.4	79.1	74.7	70.2	52.5

(a) States listed in Schedule 1.

SCHEDULE II—WAGES, INCOME AND EMPLOYMENT IN MAJOR INDUSTRIES BY STATE GROUPS. SUB-DIVISION OF DATA SHOWN IN SCHEDULE I, SEPT., 1931, COMPARED WITH SEPT., 1929

1—NEW ENGLAND STATES: States Included, Massachusetts, Connecticut, Rhode Island.

Industry Group	1— Number of Companies Reporting	2— Number of Employees 1929	3— Number of Employees 1931	4— Wage Level Per cent 1931 of 1929	5— Relative Working Hours Per cent 1931 of 1929	6— Income Level Per cent 1931 of 1929	7— Number Employed Per cent 1931 of 1929	8— Group Payrolls Per cent 1931 of 1929
1—Food and kindred products	1	209	153	79.4	128.6	102.1	73.2	74.7
2—Textile and other products	7	2,963	2,277	96.4	83.7	80.7	76.8	59.1
3—Forest products	1	218	174	88.0	69.2	60.9	79.8	48.6
4—Paper and paper products	9	1,647	1,196	95.9	92.9	89.1	72.6	64.7
5—Printing, publishing and allied industries	2	696	585	83.2	82.6	68.7	84.1	57.8
6—Chemical and allied products	2	1,560	1,634	95.5	93.9	89.7	104.7	93.9
8—Rubber products	3	3,493	2,539	92.0	90.0	82.8	72.7	60.3
9—Leather and its manufactures	2	639	593	94.0	82.0	77.1	92.8	71.6
10—Stone, clay and glass products	1	244	161	102.3	97.0	99.2	66.0	66.1
11—Iron, steel and their products, not including machy.	12	8,770	6,750	95.0	76.3	72.5	77.0	55.8
12—Non-ferrous metals and their products	5	9,280	5,975	92.5	76.3	70.6	64.4	45.4
13—Machinery, not including transportation equipment	10	4,955	3,030	89.8	78.6	70.6	61.2	43.2
15—Miscellaneous	3	907	660	92.2	75.6	69.7	72.8	50.7
Total	58	35,581	25,727	93.3	81.0	75.6	72.3	54.7

2—MIDDLE ATLANTIC STATES: States Included, Pennsylvania, New Jersey, New York, not including New York City.

1—Food and kindred products	6	1,148	1,330	98.3	95.4	93.8	115.9	108.6
2—Textile and other products	2	1,958	1,802	97.8	53.2	52.0	92.0	47.9
3—Forest products	4	1,683	1,041	88.9	74.7	66.4	61.9	41.1
4—Paper and paper products	3	250	275	96.1	102.1	98.1	110.0	107.9
5—Printing, publishing and allied industries	8	2,504	2,325	94.3	89.6	84.5	92.9	78.5
6—Chemical and allied products	4	1,847	805	87.3	83.7	73.1	43.6	31.9
7—Products of petroleum and coal	1	3,110	2,684	103.0	90.2	92.9	86.3	80.2
8—Rubber products	1	369	216	86.4	79.9	69.0	59.5	41.1
10—Stone, clay and glass products	4	1,687	1,893	94.4	98.8	93.3	112.2	104.8
11—Iron, steel and their products, not including machy.	14	6,905	3,835	90.3	61.3	55.4	55.5	30.8
13—Machinery, not including transportation equipment..	17	7,733	4,475	96.1	78.7	75.6	57.9	43.8
14—Transportation equipment, air, land and water.....	6	3,614	2,651	94.0	79.2	74.4	73.4	54.6
15—Miscellaneous	6	1,113	1,026	91.9	89.9	82.6	92.2	76.2
Total	76	33,921	24,538	94.8	79.1	75.0	71.8	53.8

3—EAST NORTH-CENTRAL STATES: States Included, Wisconsin, Michigan, Illinois, Indiana, Ohio.

1—Food and kindred products	4	608	554	94.5	91.2	86.2	91.1	78.5
2—Textile and other products	2	532	420	83.2	80.5	67.0	78.9	52.9
3—Forest products	5	1,880	1,174	93.4	66.3	61.9	62.4	38.6
4—Paper and paper products	3	827	805	95.1	94.2	89.6	97.3	87.2
5—Printing, publishing and allied industries	1	48	52	102.4	100.0	102.4	108.3	110.8
6—Chemical and allied products	4	6,483	5,378	103.3	93.4	96.5	83.0	80.1
8—Rubber products	1	1,845	1,098	106.0	88.0	93.3	59.5	55.5
9—Leather and its manufactures	2	4,864	4,457	87.7	82.1	72.0	91.6	66.0
10—Stone, clay and glass products	3	1,265	1,116	96.2	95.5	91.9	88.2	81.0
11—Iron, steel and their products, not including machy.	13	20,339	15,339	92.9	76.1	70.7	73.1	51.7
12—Non-ferrous metals and their products	3	535	338	90.8	70.6	64.1	62.7	40.2
13—Machinery, not including transportation equipment..	34	26,924	15,173	94.0	66.2	62.2	56.4	35.1
14—Transportation equipment, air, land and water.....	6	3,217	2,041	100.6	66.1	66.5	63.4	42.1
15—Miscellaneous	6	1,582	1,590	94.8	92.8	88.0	100.4	88.3
Total	87	71,592	49,535	94.6	76.2	72.1	69.2	49.9

4—EAST SOUTH-CENTRAL STATES: State Included, Kentucky.

5—Printing, publishing and allied industries	1	636	561	100.0	98.3	98.3	88.2	86.6
11—Iron, steel and their products, not including machy.	2	205	206	105.8	86.5	91.5	100.5	92.0
Total	3	841	767	101.6	95.0	96.5	91.2	88.0

WAGES, INCOME AND EMPLOYMENT IN MAJOR INDUSTRIES BY STATE GROUPS. SUB-DIVISION OF DATA SHOWN IN SCHEDULE I, SEPT., 1931, COMPARED WITH SEPT., 1929

5—WEST NORTH-CENTRAL STATES: States Included, Minnesota, Wisconsin.

1—Food and kindred products	1	1,250	832	114.2	84.2	96.2	66.6	77.4
2—Textiles and their products	2	700	700	65.5	100.0	65.0	100.0	65.0
4—Paper and paper products	1	210	170	100.0	72.0	72.0	81.0	58.3
5—Printing, publishing and allied industries	2	155	122	98.0	98.0	96.0	78.7	75.0
11—Iron, steel and their products	1	927	666	80.5	94.4	76.0	71.8	54.6
13—Machinery, not including transportation equipment..	3	3,952	....	....	....	....	....	....
14—Transportation equipment, air, land and water.....	2	3,096	1,638	94.2	73.5	69.2	52.9	36.5
15—Miscellaneous	4	2,558	1,695	104.7	98.9	103.5	66.3	68.5
Total	16	12,848	7,425	94.0	87.8	82.5	57.8	47.7

6—PACIFIC STATES AND HAWAII: States Included, California, Hawaii.

1—Food and kindred products	2	1,071	1,191	100.0	88.1	88.1	111.2	97.9
3—Forest products	2	221	169	84.5	78.9	66.7	76.5	51.0
5—Printing, publishing and allied industries	1	210	209	98.9	99.0	97.9	99.5	97.5
8—Rubber products	1	630	780	94.2	85.7	80.7	123.8	99.8
Total	6	2,132	2,349	96.9	87.0	84.3	110.2	93.1
Grand Total (Schedule I)	246	156,915	110,161	94.4	79.1	74.7	70.2	52.5

In the preparation of the tables required to be compiled from the replies to this inquiry, it was necessary to make quite a number of extensions and to tabulate the statistics in various arrangements. Although there are only 246 companies involved, about 1,000 separate returns had to be handled, because the inquiry requested the data subdivided by classes of employees. Five extensions had to be made for each return, for each table. When the extensions were completed, tabulating cards were cut, and the data were sorted and tabulated seven or eight different ways.

Acknowledgement

We wish to acknowledge our appreciation of the helpful assistance voluntarily rendered in carrying through the task by Miss F. Muriel Ransom, Inventory Specialist, Empire State Building, New York City, who assigned the comptometer operators from her organization for the calculations, and to the staff of the International Business Machines Corporation, 310 Fifth Avenue, New York City, which made the tabulations on its 80 column tabulating equipment under the direction of G. B. Heddendorf, Special Representative of the company.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27, 1932—The Government Printing Office has received the following bids for 500,000 pounds of manila calendered tag board; Barton, Duer & Koch Paper Company, at 6.55 cents per pound.

For 5,000 white ledger envelopes; Barton, Duer & Koch Paper Company, at $17.50 per M; Charles W. Beers & Company, $20.00; Mathers-Lamm Paper Company, $19.10; Virginia Paper Company, $20.00; Whitaker Paper Company, $22.18; and R. P. Andrews Paper Company, $20.00 and $19.80.

5,000 pounds of lined chipboard; The Bartgis Brothers Company, 11.25 cents per pound; R. P. Andrews Paper 15.125 cents; Barton, Duer & Koch Paper Company, 16.175 cents; Virginia Paper Company, Inc., 16.25 cents; Old Dominion Paper Company, 16.9 cents; Walker Goulard Plehn Company, Inc., 16 cents; and C. L. LaBoiteaux Company, 17.25.

For 1,000 pounds of red stereotype molding paper; Cauthorne Paper Company, at 10.4 cents per pound; and Barton, Duer & Koch Paper Company, 10 cents.

COST SECTION

Obituary

William J. Robertson

William J. Robertson, president of the Heller & Merz Corporation, died suddenly on July 23, 1932, in his sixtieth year.

He entered the employ of the Heller & Merz Corporation on March 18, 1895, and served that company faithfully and loyally until about 1922, when ill health forced his temporary retirement. In 1923 he returned, to assume management of sales.

Mr. Robertson continued in that position until the company was merged with the Calco Chemical Company, Inc. in 1930, and the present Heller & Merz Corporation was

W. J. ROBERTSON

formed. In March 1932 he became president of the latter organization, a fitting reward for his long service.

To his host of friends in all parts of the country and to his associates he was always "Robby," loved for his loyalty and enthusiasm. His passing is a severe loss to the dyestuff industry.

He is survived by a son, William O. Robertson, and a daughter, Mrs. Helen O'Brien.

Pulp Mill Asks Lower Valuation

MONTESANO, Wash., July 16, 1932—A request for a reduction of $233,475 in the assessed valuation of the Grays Harbor Pulp & Paper Company at Hoquiam was received by the Grays Harbor county board of equalization Thursday.

Present valuation of the machinery, $648,000, was asked to be reduced to $521,000, and present valuation of buildings and dock at $277,500 to be lowered to $180,375.

China's Paper Imports

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 27, 1932—Imports of paper into China during the first four months of this year have reached a value of approximately $4,308,000. Nearly one third of this amount represented imports of news print paper M.G., cap, other printing papers, boards, and cigarette paper making up a large part of the remainder.

Foresters To Meet At Warrensburgh

Announcement of the summer meeting of the N. Y. State Section, Society of American Foresters, has just been made by Dean Hugh P. Baker, of the New York State College of Forestry, chairman of the Section. The meeting will take place September 1 and 2 at Warrensburgh, N. Y., on the Pack Demonstration Forest.

The program will begin with a dinner at the Adirondack Hotel in Warrensburgh, September 1. The following day will be devoted to a meeting on the Forest, three miles north of Warrensburgh on the Albany-Montreal highway. A new feature will be introduced in the deliberations of the foresters at this meeting in the consideration of the economic situation as it relates to the employment of foresters. In his announcement Dean Baker makes the following statement:

"It seems as though there is an opportunity for us to help some of the men who are out of employment over the period of readjustment. We are proud of our profession and have faith in it and I would like to urge that every member of the Section not only give thought to the unemployed forester but give assistance wherever that may be possible."

In addition to the routine work of the Section a sawmill and other demonstrations will be given and the experimental and practical work on the Forest will be observed and discussed.

Dean Baker urges that committee chairmen further their work as much as possible before the coming meeting and offers his personal cooperation and that of the secretary, Professor H. C. Belyea, College of Forestry, Syracuse, N. Y.

Protecting Rubber Belts

It is essential that rubber belting be protected from deterioration during the shut-down period if economical operating costs are to be enjoyed when plants are re-opened. After an exhaustive study on the storage of rubber products, the B. F. Goodrich Company, Akron, Ohio says in a recent bulletin:

"Belts should be stored in a dark, cool (not over 70 degrees Fahrenheit) place which is maintained under humidity conditions which are not too dry. This does not mean belts should be stored with one end standing wet, but the air of the warehouse should not be too dry. Direct sunlight and warm air should be avoided wherever possible.

"To further protect belting in storage the following preparation may be used to treat the edges and exposed face of belts in rolls form: One quart shellac, one pint alcohol, one and one half quarts household ammonia, three quarts water.

"This solution can be quickly applied with a whitewash brush. One gallon should cover about 300 square feet. It can be purchased already mixed, combined with special age-resisting chemicals.

"Where plant owners do not feel the shut-down period will be of sufficient duration to take off the belts and roll them up, it is suggested that the installation be checked to make certain tension has been removed."

Appointed Ticonderoga Distributors

The Ticonderoga Pulp and Paper Company, a division of the International Paper Company, announces the appointment of the Bond Sanders Paper Company, 527 8th Avenue, S., Nashville, Tenn., as distributors of Ticonderoga Special Magazine.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 23, 1932

CIGARETTE PAPER

Champagne Paper Corp., Pipestone County, Havre, 180 cs.; P. J. Schweitzer, Champlain, Havre, 1 cs.

WALL PAPER

A. L. Diament & Co., Olympic, Southampton, 1 cs.; F. A. Binder, St. Louis, Hamburg, 3 bls.; Irving Trust Co., Deutschland, Hamburg, 6 cs.

WALL BOARD

Treetex Corp., Carlsholm, Horneborg, 4225 bdls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Farmer, London, 5 bls.

PAINTED PAPER

S. Stern Stiner & Co., Olympic, Southampton, 1 cs.

NEWS PRINT

——, Tonsbergfjord, Oslo, 408 rolls; Brooklyn Times, Carlsholm, Norrkoeping, 664 rolls; ——, Carlsholm, Norrkoeping, 384 rolls; Parsons & Whittemore, Inc., United States, Oslo, 153 rolls; Perkins Goodwin & Co., Stuttgart, Bremen, 43 rolls; Walker Goulard Plehn Co., Stuttgart, Bremen, 98 rolls; Jay Madden Corp., Stuttgart, Bremen, 142 rolls; Jay Madden Corp., Scanpenn, Kotka, 678 rolls; ——, Scanpenn, Kotka, 385 rolls; A. S. Zabriskie, Scanpenn, Kotka, 45 rolls; W. H. Bell, Markland, Liverpool, N. S., 3143 rolls; Perkins Goodwin & Co., American Importer, Hamburg, 406 rolls.

WRAPPING PAPER

Irving Trust Co., Pres. van Buren, Marseilles, 34 cs.; ——, Deutschland, Hamburg, 139 rolls, 38 bls.

DRAWING PAPER

Keuffel & Esser Co., Brazil Maru, Hamburg, 51 cs.

FILTER MASSE

P. H. Petry & Co., Brazil Maru, Hamburg, 85 bls.

FILTER PAPER

A. Giese & Son, Minnewaska, Antwerp, 5 cs., 75 bls.; H. Reeve Angel & Co. Inc., American Farmer, London, 6 cs; E. Fougera & Co., Olympic, Southampton, 68 cs.; C. Schleicher & Schull Co. Inc.; American Importer, Hamburg, 15 cs.

DECALCOMANIA PAPER

C. W. Sellers, Europa, Bremen, 2 cs.

TRANSFER PAPER

Fuchs & Lang Manfg. Co., American Importer, Hamburg, 6 cs.

COATED PAPER

Happel & McAvoy, Deutschland, Hamburg, 4 cs.

METAL COATED PAPER

Globe Shipping Co., Europa, Bremen, 2 cs.; J. J. Shore, Stuttgart, Bremen, 7 cs.; Rohner Gehrig & Co., Deutschland, Hamburg, 4 cs.; K. Pauli Co., Deutschland, Hamburg, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Stuttgart, Bremen, 57 cs.

SURFACE COATED PAPER

Phoenix Shipping Co., Deutschland, Hamburg, 3 cs.

COLORED PAPER

F. Murray Hill Co., Deutschland, Hamburg, 2 cs.

PHOTO PAPER

H. W. Robinson & Co., Olympic, Southampton, 1 cs.; J. J. Gavin & Co., Berengaria, Southampton, 5 cs.

TISSUE PAPER

——, Olympic, Southampton, 2 cs.; ——, Berengaria, Southampton, 1 cs.

WRITING PAPER

Globe Shipping Co., Champlain, Havre, 7 cs.; M. Piccioto, Olympic, Southampton, 1 cs.

PASTE BOARD

——, Europa, Bremen, 62 cs.; ——, Deutschland, Hamburg, 12 cs.

PAPER AND ENVELOPES

J. Beckhard Co., Europa, Bremen, 5 cs.

BRISTOL BOARD

Coy Disbrow & Co., Black Eagle, Antwerp, 6 cs.

PAPER TUBES

French Worsted Co., Black Eagle, Antwerp, 35 cs.

PAPER BOARD

Colmar Paper Corp., Minnewaska, Antwerp, 16 cs.

STENCIL PAPER

Massce & Co. Inc., Berengaria, Southampton, 1 cs.

MISCELLANEOUS PAPER

F. C. Strype, St. Louis, Hamburg, 14 cs.

RAGS, BAGGINGS, ETC.

Van Oppen & Co., Pipestone County, Havre, 260 bls. bagging; W. Steck & Co., Black Eagle, Antwerp, 22 bls. rags; E. Butterworth & Co. Inc., Black Eagle, Antwerp, 150 bls. flax waste; ——, Deutschland, Hamburg, 47 bls. rags.

OLD ROPE

Brown Bros. Harriman & Co., Cristobal Colon, Bilboa, 212 coils; Banco Coml. Italiane Trust Co., Stuttgart, Bremen, 61 coils; Banco Coml. Italiane Trust Co., Lucia C., Trieste, 121 rolls; W. Steck & Co., Volendam, Rotterdam, 76 coils.

CASEIN

Kalbfleisch Corp., Southern Cross, B. Ayres, 168 bags.

WOOD PULP

Perkins Goodwin & Co., Tonsbergfjord, Drammen, 1125 bls. sulphite; ——, Tonsberfjord, Drammen, 1625 bls. sulphite; Gottesman & Co. Inc., Tonsbergfjord, Drammen, 1000 bls. sulphite; Irving Trust Co., Tonsbergfjord, Drammen, 400 bls. sulphite; J. Andersen & Co., Tonsbergfjord,

Greaker, 2000 bls. sulphite; Pagel Horton & Co. Inc., Carlsholm, Gefle, 3500 bls. sulphite; The Borregaard Co. Inc., United States, Oslo, 168 bls. sulphate, 28 tons; Perkins Goodwin & Co., Stuttgart, Bremen, 251 bls. wood pulp; Irving Trust Co., Stuttgart, Bremen, 450 bls. wood pulp; Johaneson Wales & Sparre Inc., Scanpenn, Gdynia, 600 bls. wood pulp, 125 tons; Castle & Overton Inc., Scanpenn, Wiborg, 278 bls. wood pulp, 55 tons; Lagerloef Trading Co., Scanpenn, Helsingfors, 760 bls. sulphite, 126 tons; Castle & Overton Inc., Volendam, Rotterdam, 280 bls. wood pulp; Castle & Overton Inc., Deutschland, Hamburg, 2570 bls. wood pulp, 514 tons; Brown Bros. Harriman & Co., Brazil Maru, Hamburg, 169 bls. wood pulp, 25 tons; E. J. Keller Co. Inc., American Importer, ——, 846 bls. wood pulp, 126 tons.

PORTLAND IMPORTS

WEEK ENDING JULY 23, 1932

Waterfalls Papermills, Tonsbergfjord, Greaker, 4298 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING JULY 23, 1932

C. J. Connick & Co., Pipestone County, Havre, 4 cs. wall paper; 1st Natl. Bank of Boston, Pipestone County, Havre, 20 bls. paper stock; Atkinson Haserick & Co., Pres. van Buren, Genoa, 1 cs. wrapping paper; Stone & Downer Co., American Farmer, London, 3 cs. gummed paper; Crocker Burbank Co., American Farmer, London, 262 bls. waste paper; Gottesman & Co. Inc., Beemsterdyk, Germany, 400 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 23, 1932

Acorn Paper & Twine Co., Pipestone County, Havre, 10 cs. wrapping paper; Castle & Overton Inc., Pipestone County, Havre, 121 bls. rags; Lagerloef Trading Co., Scanpenn, Kotka, 757 rolls wood pulp boards, 83 tons; Lagerloef Trading Co., Scanpenn, Kotka, 167 bls. wood pulp boards, 26 tons; ——, Scanpenn, Kotka, 985 bls. sulphate, 197 tons; 1015 bls. sulphite, 192 tons; ——, Scanpenn, Wiborg, 1216 bls. wood pulp, 203 tons; Castle & Overton Inc., Scanpenn, Wiborg, 2913 bls. wood pulp; Lagerloef Trading Co., Scanpenn, Helsingfors, 130 bls. mechanical pulp, 26 tons; ——, Lucia C., Trieste, 266 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING JULY 23, 1932

Gottesman & Co. Inc., Beemsterdyk, Germany, 900 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING JULY 23, 1932

Chase National Bank, Hokuroko Maru, Osaka, 1600 bls. bagging; Darmstadt Scott & Courtney, McKeesport, Havre, 231 bls. bagging.

ALBANY IMPORTS

WEEK ENDING JULY 23, 1932

——, August, Archangel, 3482 cords pulpwood.

Binder's Board Practice Reaffirmed

Simplified practice recommendation No. 81, entitled binder's board has been reaffirmed, without change, by the standing committee of the industry, according to the division of simplified practice of the Bureau of Standards.

This recommendation, which was proposed and developed by the industry, has been instrumental in reducing the number of sizes of binder's board from 718 to 10, or 98 per cent.

Rag Fibers for Paper-Making

The Bureau of Standards, Washington, D. C., recently reported the results of tests of unsized currency-type papers made in the Bureau paper mill in study of the paper-making characteristics of various grades of rags. Following are results of tests of the same papers after they were surface-sized with glue. The papers contained no rosin sizing.

The papers made from used cotton rag half stocks i.e., "Twos and Blues" and "No. 1 Old Whites" took up the most glue, nearly 3.5 per cent. New cotton rag papers took up about 2.0 per cent, and papers from linen-cotton mixtures about 1.5 per cent. The increase in tensile strength as a result of glue sizing was roughly in proportion to the amount of glue absorbed. Thus, the used cotton papers increased about 70 per cent, new cotton papers about 50 per cent, and the papers made from mixtures of linen and cotton about 30 per cent on the average. The loss in tear was not very great for any of the papers, amounting to 5 or 10 per cent. The change in folding endurance resulting from glue sizing is of interest. The papers made from used cotton half stocks were of low folding endurance, but were increased in strength about 700 per cent. Papers from new rags were not increased in folding endurance to any great extent, with the exception of the all-cotton papers, in which cases the fold in the machine direction was much greater than in the cross direction. For example, one paper having folds in the two directions of 7,400 and 2,700, respectively, gave tests of 6,100 and 6,000 respectively after sizing. This tendency for tub-sizing to increase uniformity of strength has been noted in connection with previous studies.

The tub-sizing resulted in an increase in copper number and a slight decrease in alpha cellulose content, probably an effect of the alum in the glue.

Because of the high stability of the unsized papers no improvement in this respect resulted from tub sizing. It was noted, however, that the papers that were increased in fold so tremendously by the tub-sizing lost this fold at a faster rate on heating than did the corresponding basic papers.

Joseph E. Loughead Co. Appointed Agent

The Joseph E. Loughead Company, 334 W. Kalamazoo avenue, Kalamazoo, Mich., has been appointed Western representative for the New York Color and Chemical Company, Inc., of Belleville, N. J. A complete stock of all colors for bond, book and coating mill use is carried in stock in Kalamazoo.

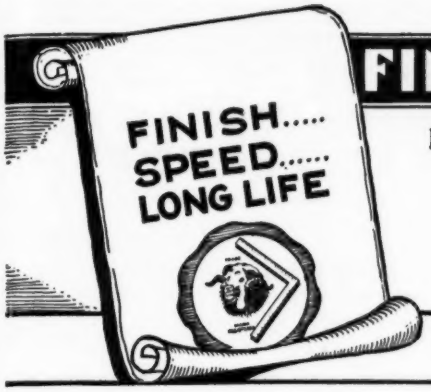
The New York Color and Chemical Company is an old established manufacturing color concern covering the entire field of colors for paper, leather, paint and foodstuff uses. Complete laboratory and technical service is available to all industries.

Edward Kormin Dead

Edward Kormin, for the past ten years representing the Heller & Merz Corporation in Michigan, Wisconsin, Minnesota, and Illinois, passed away at his home, Green Bay, Wis, on Wednesday, July 20. Mr. Kormin was widely acquainted in the paper industry, and a legion of friends will mourn his loss.

C. H. Wood With Train, Smith & Co.

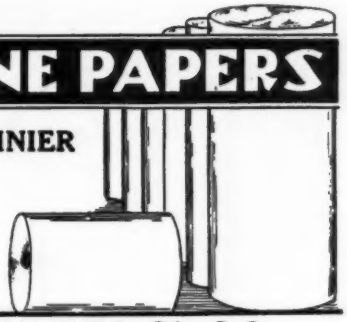
BOSTON, Mass., July 25, 1932—Charles H. Wood, formerly managing director of E. Butterworth & Co., Inc., is now associated with Train, Smith & Co.



FINE FELTS for FINE PAPERS

FOR CYLINDER AND FOURDRINIER MACHINES

Let us solve your FELT Problems.



THE WATERBURY FELT CO.
SKANEATELES FALLS, N.Y.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, Index Bristol, Post Card and Label Papers

High Grade Coated Book

also

KRAFT WRAPPING AND KRAFT ENVELOPE

Bleached Spruce Sulphite Pulp, Soda and Kraft Pulp

230 Park Ave. New York — 35 East Wacker Drive Chicago

503 Market St., San Francisco, Cal.

Sixth and Chestnut Sts., Philadelphia, Pa.

1864 1932

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America

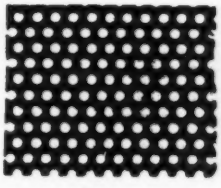
Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY
BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

Perforated Metal Screens

For Pulp and Paper Mills



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS
63-65 FAIRMONT AVE. JERSEY CITY, N. J.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 27, 1932.

During the past week the local paper market continued listless. Demand for the various standard grades of paper is only moderately active, with the exception of summer specialties, which are in seasonal request. Sales forces of the leading paper organizations are preparing a strenuous Autumn campaign and are fairly optimistic.

The position of the news print paper market is practically unchanged. Production in the United States, Canada and Newfoundland is being maintained in sufficient volume to take care of current requirements. There have been no further developments reported in the merger movement. Prices remain unsatisfactory.

Most of the business transacted in the paper board market during the past week was along routine lines. Demand for box board is light. Prices are easy. The fine paper market is fairly steady. Tissues are going forward at a normal pace for the season. The coarse paper market is holding up well and kraft wrapping paper is moving in good volume.

Mechanical Pulp

The ground wood market is marking time at present. Demand for both imported and domestic mechanical pulp is light. Production at home and abroad is still being curtailed, however, and offerings are not excessive, with the result that the industry is in a sound statistical position. Prices are holding to schedule.

Chemical Pulp

Conditions in the chemical pulp market are fairly satisfactory. With few exceptions, demand for the various domestic and imported grades is moderately active. No. 1 strong unbleached imported chemical pulp is easier however, and is now quoted at from $1.40 to $1.60, on dock, Atlantic ports. Prices on other grades are practically unchanged.

Old Rope and Bagging

The old rope market is exhibiting an irregular undertone. Demand for both domestic and imported old manila rope is light. Small mixed rope is dull. Old rope prices are rather soft. The bagging market continues quiet. Scrap and gunny are easy. Roofing bagging is only moving slowly. Prices are fairly well maintained.

Rags

Little improvement was noticed in the domestic rag market. Cotton cuttings are only in moderate request. According to reports from some quarters, offerings of roofing rags are somewhat limited. Domestic rag quotations continue strictly nominal. The imported rag market is dull and trading is still affected by the uncertainties of foreign exchange.

Waste Paper

No radical changes were reported in the paper stock market. Board mill demand for the lower grades of waste paper is slightly better. Supplies of No. 1 mixed paper are said to be scarce and prices are firmer than of late. The better grades of paper stock are not particularly active and book stock is extremely quiet.

Twine

Trading in the local twine market was somewhat restricted during the past week. With the approach of Fall, however, demand should become more lively. Inquiries for future needs are being received in fair volume, some of which should materialize into good orders. Prices continue fairly steady, despite keen competition for desirable business.

Stability of Hand-Made Papers

Tests of commercial hand-made book papers recently made by the Bureau of Standards show that they have much the same range of stability of strength, under the heat test, as found in machine-made book papers.

Through the cooperation of a domestic dealer in such papers, 13 samples representative of the products of five different foreign countries were made available for the Bureau tests. The papers were tested for folding endurance before and after being subjected to a temperature of 100 deg. C. for 72 hours. Two of the papers were unusually strong and were affected very little by the heat test. One of these composed of rag fiber, had a folding endurance of 10,000 folds and the other, composed of typical Japanese fibers, probably mitsumata, withstood around 30,000 folds. The other papers, all composed of rag fibers, ranged in strength down to 3 folds, and in stability down to loss of around one-half of their initial folding endurance on heating.

St. Regis Suspends Water Shipments

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., July 25, 1932.—The St. Regis Paper Company has suspended its shipments of paper from the terminal here over the Great Lakes route until further notice. It was recently announced that water shipments would be inaugurated to customers in the West and a vessel was loaded and sent over the route about two weeks ago. Whether or not the system proved unsatisfactory could not be learned but it was announced that no tonnage is ready for shipment. It is possible that shipments will be resumed late in the summer. The company made a contract several years ago which permitted using the route but for some reason it never became effective until this season.

O'Brien Steam Specialty Co. To Be Agent

The Mason Regulator Company of Boston, manufacturers of automatic regulating and control equipment, announce the appointment of the O'Brien Steam Specialty Company of Syracuse, N. Y., as exclusive representatives for western and northern New York state. The O'Brien Steam Specialty Company has offices in Syracuse, Rochester and Niagara Falls.

Arthur D. Little, Inc.

Chemists and Engineers to the Pulp and Paper Industry for over Forty Years

Laboratories and Experimental Mill

30 CHARLES RIVER ROAD, CAMBRIDGE, MASS.

Hardy S. Ferguson & Co.

Consulting Engineers

200 Fifth Avenue, New York City

Hardy S. Ferguson..... Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze ..... Member A.S.M.E., E.I.C., A.S.C.E.
J. Wallace Tower ..... Member A.S.C.E., A.S.M.E.

Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.
Steam and Hydro-electric Power Plants
Dams and other Hydraulic Structures.

PMC

ROSIN SIZE SATIN WHITE

INDUSTRIAL CHEMICALS

Dependable, uniform paper-making chemicals can only be made by quantity production under strict chemical control.

PAPER MAKERS CHEMICAL CORPORATION

KALAMAZOO, MICHIGAN
17 LARGE PLANTS

CLINTON STARCHES

Special Grades for Beater and Top Sizing

Manufactured by

CLINTON CORN SYRUP REFINING COMPANY
CLINTON, IOWA

QUALITY SERVICE

GEORGE F. HARDY

Consulting Engineer

305-309 Broadway, New York City, N. Y.

Member—Am. Soc. C.E.—Am. Soc. M.E.—Eng. Inst. Can.

Consultation	Paper and Pulp Mills
Reports	Hydro-Electric and
Valuations	Steam Power Plants
Estimates	Plans and Specifications

Dietz Towel Interfolding Machines

also

TOILET PAPER MACHINES
For making Toilet and Paper Towel Rolls
(With or without perforations)

AUTOMATIC TUBE MACHINES
For Making Wire-Stitched Toilet Tubes

Sanitary Crepe Towel Machines, Roll Tighteners, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
Correspondence solicited

DIETZ MACHINE WORKS

126-128 W. Fontaine Street
Cor. Waterloo St. (between Front & Second Sts.)
and below Diamond St.
Phila., Penna., U. S. A.

The uses of Liquid Chlorine

are rapidly expanding, so we are improving our facilities, and are prepared to ship promptly in Tank Cars, Multi-Unit Tank Cars (1-ton containers), or Cylinders (150 lbs. or 100 lbs.) from either Philadelphia, Pa., Wyandotte, Mich., Menominee, Mich., or Tacoma, Wash.

Inquiries and general correspondence should be addressed to our Philadelphia Office

Pennsylvania Salt Mfg. Company

Incorporated 1850.

Widener Building, Philadelphia, Pa.

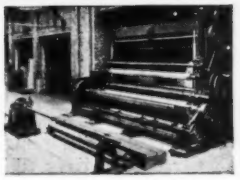
Representatives:
New York Pittsburgh Chicago St. Louis

Works:
Natrona, Pa. Wyandotte, Mich.
Philadelphia, Pa. Menominee, Mich.
Tacoma, Wash.

a clean cut—
a sure cut—
a shear cut—

LANGSTON SLITTERS

For clean, square-edged, tightly wound rolls, Langston Slitters are unequaled. The Shear-Cut parts the paper cleanly—instead of *crushing* it. Ask for details.



SAMUEL M. LANGSTON CO.
Camden, New Jersey

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 27, 1932.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are generally holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Supplies are moving into consumption in good volume for the season. Bleaching powder is still quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues weak. Domestic standard ground is still quoted at 4¾ cents and finely ground at 6 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—While the caustic soda market is quiet, the industry is in a sound position. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The China clay market is moderately active. Contract shipments are going forward in fair volume. Imported China clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Trading in the chlorine market is light at present. The contract movement, however, is fairly satisfactory. Prices remain unchanged. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. The grades of gum rosin used in the paper mills are now quoted at from $3.40 to $3.55 per 280 pounds, in barrels, at works. Wood rosin is selling at $2.50 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Demand for salt cake is fairly active. Prices remain unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is displaying a strong undertone. Shipments against contract are moving with regularity. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1; in bags, $1.25; and in barrels, $1.38.

STARCH.—Steadiness prevails in the starch market. The contract movement is fairly heavy. Prices generally remain unchanged. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is fairly steady. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is marking time. Sulphur is quoted at $18 per long ton, or orders of 1,000 tons or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Paper mill demand for talc is restricted. The contract movement is moderate. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —

(Delivered New York)

News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	22.50	@25.00
Straw	34.50	@45.00
Chip	22.50	@25.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	26.00	@28.00
Sgl. Mla. Lt. Chip	35.00	@37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	19.00	@21.00
Dry	21.00	@22.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.40	@ 1.60
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—		
Bleached	2.10	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.50	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.25	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White ,No. 1.	4.00	@ 4.25
New White, No. 2.	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.25	@ 4.50
New Light Oxfords	3.75	@ 4.00
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	1.60	@ 1.70
Ordinary Hard White No. 1	1.30	@ 1.40
Hard White No. 2	1.25	@ 1.30
Soft White No. 1.	1.25	@ 1.35
Flat Stock—		
Stitchless	.50	@ .60
Overissue Mag	.50	@ .60
Solid Flat Book	.45	@ .50
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.45	@ .55
New B. B. Chips	.20	@ .25
Manilas—		
New Env. Cut	1.25	@ 1.35
New Cuttings	1.00	@ 1.05
Extra No. 1 old	.80	@ .90
Print	.35	@ .40
Bogus Wrapper	.30	@ .35
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.60	@ .70
News—		
No. 1 White News	1.15	@ 1.20
Strictly Overissue	.35	@ .40
Strictly Folded	.23	@ .28
No. 1 Mixed Paper	.15	@ .20

THE CLARK-AIKEN CO.

Successors to
H. C. Clark & Son Machine Co.

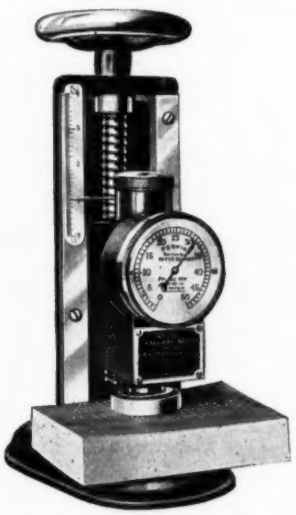
PAPER MILL MACHINERY

LEE, MASS.

Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

PERKINS PRESSURE BULKER

Co-ordinates sheet count with bulk in inches.



Positive uniform standard for gauging bulk of paper. Simply place sheets between contact faces and clamp down until desired pressure is indicated on the dial. The exact thickness can then be read from the vertical scale.

B. F. PERKINS & SON, INC.,
HOLYOKE, MASS.

6-color Printing on Cellophane

Write for information about our new Web Press, designed by Windmoller & Holscher, for printing six colors in close register on CELLOPHANE, with provision for slip-sheeting and rewinding.

H. H. HEINRICH, INC.
200 Varick St., N. Y.

Chicago Office: ARTHUR PRAUSNITZ
122 South Michigan Avenue

PERMANENT COLORS

Browns Greens Reds Yellows

BROWNS
Oxides of Iron
Turkey Umbers

GREENS
Chromic Oxides
Guignet's Green

REDS
All types and shades of Oxides of Iron

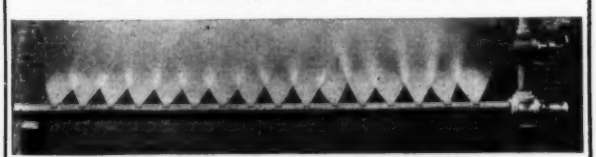
YELLOWS
Ochres
Iron Hydroxides

Asbestines and Talcs for Fillers

C. K. WILLIAMS & CO.
EASTON, PA.

"M & W" CRISS CROSS SHOWER PIPES

"WILL NOT RIDGE THE WIRES OR MAKE STREAKS"



FOR PAPER MACHINE WIRES, FELTS AND SCREENS

THE MOORE & WHITE COMPANY
Paper Mill Machinery Philadelphia, U. S. A.

CASEIN

ANY GRADE — ANY QUANTITY

THE CASEIN MFG. COMPANY OF AMERICA, Inc.
205 E. 42nd St. New York, N. Y.

Oldest and Largest Producers of Casein in America

Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¼
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04½	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.20	@	1.35
Ledger & Writings	.55	@	.65
Solid Books	.35	@	.50
Blanks	1.00	@	1.15
Kraits	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.30	@	.35
No. 2	.20	@	.25
Mixed Papers—			
No. 1	.15	@	.25
No. 2	.10	@	.15
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½

(F. o. b. Boston)

Southern Kraft	.03¼	@	.03¼

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¼

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.35
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.70
White Blank News	1.10	@	1.20
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixed String	—	@	.32½
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	—	@	.79
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.60	@	.75
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.80	@	1.00
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.03¼
New Unbleached	.05	@	.05½
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¼
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags

(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.85
Old Linsey Garments	.55	@	.65

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	45.00	@	—
Sulphite, news grade	40.00	@	—
Sulphite, bleached	58.00	@	65.00
Sulphate	55.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

How To Get ALUM SOLUTIONS Quickly . . . Cheaply

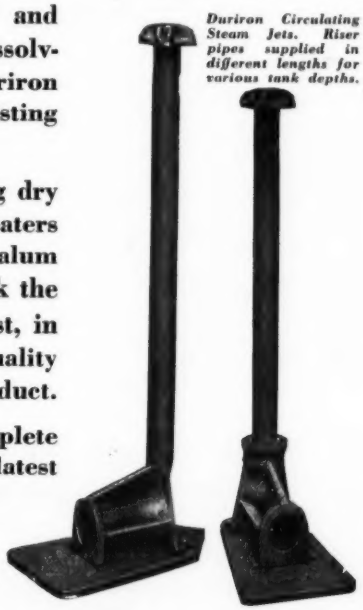
The "Keystone" of a cost-saving dissolved alum method is the Duriron Circulating Steam Jet. Here's why:

(1) The Jet lasts indefinitely, because alum solution has no effect on Duriron.

(2) The Jet heats and agitates the solution in one operation.

(3) There is no destructive pounding, no vibration . . . tanks last longer.

Cost records kept by many mills on the use of dissolved alum versus dry alum show that money is saved and profits made by dissolving alum with Duriron corrosion-resisting equipment.



Duriron Circulating Steam Jets. Riser pipes supplied in different lengths for various tank depths.

If you are using dry alum, try some beaters with the proper alum solution, and check the saving in alum cost, in size and in the quality of the finished product.

Ask us for complete information and latest bulletins on Duriron Dissolved Alum Systems.

THE DURIRON COMPANY, INC.

444 N. Findlay St. Dayton, Ohio

DURIRON

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

SIXTY FIRST YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President: J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 10 East 39th Street, New York
Chicago Office: 123 West Madison St.

TABLE OF CONTENTS

Copyright, 1932, by the Lockwood Trade Journal Co., Inc.

Philadelphia Market Outlook Brighter	15
Paper and Bag Institute Chartered	15
Credit Bureau Formed	15
Quaker City Co. Reorganized	15
Boston Market Fairly Active	16
A. M. Burr with Badger Paper Mills	16
Completing West End Improvements	16
S. L. Willson Club Outing	16
Fox River Valley Mill Activities	17
Pulpwood Operations Start	17
New Thilmany Bag Mill	17
Kimberly-Clark Report	17
Industrial Rubber Goods	17
Paper Demand Falls Off in Toronto	18
Abitibi Agreement Reached	18
H. P. Gould Mentioned for Assembly	18
Container Suits Dismissed	18
New York Trade Jottings	20
Construction News	22
New Companies	24
Thrifty Advertising	24
E. A. Kennedy With Northwest Co.	24
Note on Sampling of Shredded Pulp	24
New Gummed Products Sample Book	24
Editorial	26
TAPPI Advisory Committee	26
Against Rate Reduction on News Print	27
Rinman Process in Liquidation	27
Improvement at Fort Edward	27
New White Water Recovery Device	27
Efforts to Settle Union Bag Strike	27
Technical Section	
Modern Alkali Recovery Systems	29
Harry F. Lewis Appointed	33
United States Patents on Papermaking	34
Pulp and Paper Industry Literature Review	37
Imports of Pulp and Paper Stock	42
New York Market Review	46
Miscellaneous Markets	48
Market Quotations	48

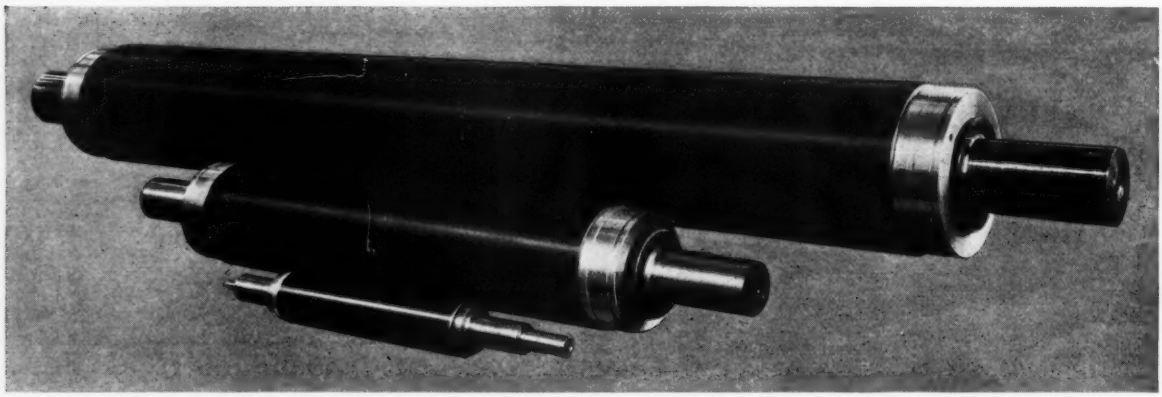
THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 52-53

ROLLS THAT FIT YOUR OPERATING REQUIREMENTS

PAPER CALENDER ROLLS
REFILLING • CHILLED IRON CALENDER ROLLS

The ability of Appleton Calender Rolls to give long service and their fine finishing qualities have earned the increasing good-will of paper mills that have learned by experience the economy of Appleton Rolls. For years many mills have relied on Appleton Rolls for quality and service. For many years roll building has been an important and highly specialized department of our business. With this experience, from the careful selection and preparation of the finest materials to the final finishing, Appleton Calender Rolls, whether new or refilled, are built to meet exacting operating requirements. Their quality is predetermined. It is your guarantee of satisfactory roll service.



ROLLS OF ALL KINDS AND ALL SIZES FOR PULP AND PAPER MACHINERY APPLICATION

Calender Rolls • Press Rolls • Breast Rolls
Granite Rolls • Couch Rolls • Covered Rolls
Embossing Rolls • Felt Rolls • Table Rolls
Special Rolls • Tube Rolls • Roll Grinding

THE APPLETON MACHINE COMPANY

• • • APPLETON, WISCONSIN • • •